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ABSTRACT

These 12 papers were presented at plenary sessions of the conference. They are arranged by substance into (1) social research and public policy, (2) the need to plan: unlimited social objectives and scarce resources, (3) institutional responses to pressures for planning, (4) contemporary approaches to planning in education, and (5) social priorities and resource allocation. (Author/RA)

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SOCIAL GOALS,
EDUCATIONAL PRIORITIES,
AND DOLLARS:

planning education in the seventies

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SOCIAL GOALS, EDUCATIONAL PRIORITIES, AND DOLLARS:

PLANNING EDUCATION IN THE SEVENTIES

Proceedings of The Invitational Conference on Educational Planning Sponsored by the Alberta Human Resources Research Council and The Canadian Council for Research in Education, October 18-21, 1970.

J. A. Riffel and E. Miklos
Editors

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FOREWORD

This is an important time for education.

Many of the questions which now confront policy makers in education were not being asked a decade ago. Events of the sixties have challenged many of the traditional assumptions on which educational systems in Canada are based -- assumptions about the public and private benefits of education, about the demand for an ever increasing level of financial support for education, and about the rules and procedures of formal education. According to some observers, these issues add up to a major crisis of confidence in public education, and dealing with these problems will be the pre-eminent concern of policy makers in the seventies. Faced with these issues, educational policy makers and planners must develop an organizational framework and a technology which will help them make the difficult decisions which lie ahead.

In an effort to assist those who must meet these challenges, the Alberta Human Resources Research Council and the Canadian Council for Research in Education cosponsored a conference on education planning which was held at Banff, Alberta, from October 18 to 21, 1970. The general purposes of the conference were:

1. to acquaint leading educators from across Canada with some of the problems and prospects of planning education in this decade; and

2. to consider the possibilities of mounting a coordinated nation-wide study of education planning.

The themes of the major presentation and discussion sessions at the conference were social research and public policy in Canada; perspectives on education planning; measuring educational performance; and quantitative planning techniques. Workshops were also scheduled to permit a more intensive study of such topics as cost-benefit analysis, simulation techniques, information systems, evaluation, and program budgeting. The concluding session was devoted to a discussion of organizing a nation-wide study of planning practices in Canada and the formation of task groups to examine specific problems in planning education.

The twelve papers in this collection were presented at plenary sessions. They are not arranged strictly according to the sequence in which they were delivered at the conference; instead, they have been organized according to substance in a manner which was not possible when the conference program was designed. The papers are presented in the following five sections:

1. Social research and public policy;
2. The need to plan: unlimited social objectives and scarce resources;
3. Institutional responses to pressures for planning;
4. Contemporary approaches to planning in education;
5. Questions at center stage.

We hope that this arrangement of papers will prove to be an effective presentation of the many significant ideas which the authors of the papers have to contribute on "Social Goals, Educational Priorities, and Dollars."

J. A. Riffel and E. Miklos, Editors

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ACKNOWLEDGEMENTS

Conference directors and the editors of proceedings are usually indebted to many individuals who contributed in various ways to the successful completion of a conference and the publishing of proceedings; this case is no exception. It is also true that we cannot name all of those who should be named and can express only general thanks to many while identifying only a few.

Many of the ideas on which the conference program was based grew out of meetings initiated by CCRE and attended by individuals from various organizations. We hope that our appreciation for these ideas is shown by their appearance in the conference and in the proceedings. Our thanks are due also to those who contributed to the conference as chairmen, speakers, and discussants. The ultimate success of a conference rests upon busy people who are willing to take on still one more responsibility.

We would also like to take this opportunity to thank the members of the HRRC staff who contributed to the success of this conference and the publication of the papers. Special mention must be made of Trudy Plunkett who served as secretary during the lengthy organization stage and assisted with registration, to Elaine Burns who also assisted with registration and typed the manuscripts for publication, and to Pat Bourgette who arranged for the tape recording of the major presentations.

The special assistance of Judith Carefoot in the preparation of this publication is gratefully acknowledged.

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I

SOCIAL RESEARCH AND PUBLIC POLICY

Some time ago, Thorstein Veblen wrote "A scientist is addicted to the practice of idle curiosity". This half-facetious definition states in a compelling way the classical stance of the social scientist. But the public demand for the utilization of the findings of social research is increasing rapidly and has led to a search for a policy for the social sciences. What are the forces impelling this search for a policy, and what will be the consequences, both for social scientists and for public policy makers?

SOCIAL RESEARCH AND PUBLIC POLICY

by

Senator D. Cameron
The Senate of Canada

I am honored to have the opportunity of giving the opening address to this important conference on Social Goals, Educational Priorities and Dollars: Planning Education in the 70's.

The scope of the topic is so broad that obviously one must be selective and confine his remarks in the course of one address to a relatively narrow spectrum of the whole field.

In view of the experience I have had in the last two-and-a-half years, particularly in relation to my position as vice-chairman of the Senate Committee on Science Policy and in view of the wide-ranging travel I have had in the Far East and in Europe during the current year, I am sure you will understand if the main thrust of what I have to say relates to the application of science and technology in our society in the 70's and how we exercise the levers of power in bringing about agreed objectives.

I do not propose to go into any detail in matters of Science Policy, other than to say that what we are doing in this field represents a very substantial investment in the future, and that the directions we take will have far-ranging implications in the kind of society which will exist ten to twenty years from now. I say ten to twenty years from now advisedly because the lead time between the conception of an idea and its delivery in the marketplace or in public use varies from ten to twenty years.

This long lead time is one of the factors underlying the importance of a conference of this kind because it's not what we are doing today that is so important. Rather, it is the plans that are being made now for tomorrow which must be carefully thought out and made the subject of public dialogue such as we have never had before.

I think it is particularly important that we keep in mind what are the basic levers of power which we must be concerned with in the implementation of policy. I think we might briefly consider four of them. The primary one is education, because what we do in the field of education is going to be the main determinant of the kind of society we and our children are going to be concerned with between now and the end of the century.

The second lever of power, of course, is the necessary finances to support the kind of education required.

The third is the mobilization of the communication media, to a degree of effectiveness that we have not so far experienced.

A fourth lever of power in implementing social change, of course, is the research and the technology which is applied in all phases of our national life.

Canada's Social, Political, and Economic Climate

I was intrigued with some paragraphs in the recent Throne Speech given in the Senate on Thursday, October 8th, and as these paragraphs are pertinent to everything we are saying and doing, I am taking the liberty of quoting them verbatim to provide the bench mark from which we will proceed to discuss in further detail the problems of social research and public policy. By way of emphasis I would like to repeat a paragraph which I think is in tune with today's climate, a climate which has been brought into tragic and drastic focus by the tragedy of the hijackings, kidnappings, and murders of recent days.

> *The passing of the sixties and the beginning of the seventies reminds us that Canada faces a new age; an age which will be subject to forces not all of which are yet comprehended or understood, forces which will proceed from external as well as internal origins. It is a new age not so much because of changed circumstances, but new because of changed values and attitudes.*
>
> *Because of the clash between these new values and the old, because of the quest by the young and the disillusioned for some resolution of attitudes, we live in a period of tenseness and unease. It is an age frequented by violence as desperate men seek ill-defined goals; an age of frustration as gentle men question impatiently old assumptions. It is an age in which the life-support systems of the biosphere may collapse unless man reverses his present course and begins again to live in harmony, rather than in competition, with his environment. It is an age in which the forces of science and technology now in motion are so massive, so swift, and so comprehensive that man may be facing his last opportunity to control his own destiny rather than be subject to it.*

I think those paragraphs are pregnant with meaning in terms of the climate in which we find ourselves today.

The tragic happenings of the last two weeks in Canada which culminated in the murder of Pierre Laporte last night gives special emphasis on the climate of change. The happenings of the last year-and-a-half; the assassination of Martin Luther King, of Robert Kennedy and

many others; the hijacking of planes; the bombings on our campuses; the shooting of students at Kent State and other places; plus the tragic happenings in Quebec in the last two weeks should jar us out of our complacency.

Let me repeat that paragraph from the Throne Speech and remind you that it was written days before the kidnapping of James Cross.

> *Because of the clash between these new values and the old; because of the quest by the young and the disillusioned for some resolution of attitudes; we live in a period of tenseness and unease. It is an age frequented by violence as desperate men seek ill-defined goals; an age of frustration as gentle men question impatiently old assumptions.*

It is ironic that those paragraphs were written before the recent, tragic kidnappings of James Cross and Pierre Laporte. I was in Europe when these tragic events took place and it was enlightening to a Canadian to realize the shock that went through the European countries when it became known that this dastardly deed had happened in Canada. Many people couldn't believe it - that Canada, this lily-white, stable, conservative and secure country, this rich country, rich in opportunity and rich in material things, could be the scene of the kind of anarchy that is represented by kidnappings.

I think it would be well for all of us to realize that what we are witnessing now is not some single isolated event but is part of a revolt of young people, of desperate people, of people who are living in a world of fantasy and illusion but who are nonetheless dangerous because of that.

Therefore, I suggest that we will see more of this kind of revolt, this kind of blackmail, this kind of attack on all the standards of the past. And, much as we may deplore this kind of action, we would be less than wise if we did not examine deeply to see what are the causes of the frustrations that lie behind the attempt by a minority to hold the majority to ransom.

I am disillusioned when I realize that in Canada, one of the richest countries in the world, we are so far unable to find a formula by which we can provide housing for a large percentage of our people - about 33 per cent, where we cannot find markets at a sufficiently remunerative rate to keep our farmers from bankruptcy in a time when millions of our people are going hungry every night.

I suggest to you when you examine these facts you can have a lot of sympathy with the young people who view with some cynicism the complacency and the resistance to change of the older generation.

If we are wise and inform ourselves to make rational judgements, we can, through the democratic process, evolve formulas and systems to bring about the greater equality that will not be brought about by the small minority who have been creating disruptions in the classrooms in our schools and our universities, nor by the flouting of law and order by some of our trade unions.

Too many university leaders and university administrations have been intimidated by a militant and scruffy minority from protecting the right of a large majority to get an education. On the other hand, too many university leaders have been afraid to stand up and challenge the *status quo* - afraid to say that housing must be provided for those who live in our urban ghettos; that means must be found to distribute the food which we have in abundance to those millions who go to bed hungry every night; that jobs must be found for the hundreds of thousands of people who are unemployed; that new ways and new machinery must be found and devised which change the economics of scarcity into the economics of abundance.

And don't be mislead into thinking that I am being critical only of our centres of higher education. I am equally critical of governments at every level: municipal, provincial and federal, and particularly federal because it controls the major levers of power.

While we all deplore the hijackings, the kidnappings, the murders, the bombings, and the alienation of youth, what are we doing to stop it? Make no mistake, the tragic events in Quebec are not isolated, they are part of a universal protest against a society that has grown fat and lazy and resistant to change at the speed at which it must be made. There will be more bombings; there will be more kidnappings.

This is not a comforting thought, but if we are finally prodded into examining ourselves, into examining where and why our democratic process is failing, then these tragic events may lead to some good, even though the price is fearful.

A great responsibility for the climate we are in must rest on our educators, our labor leaders, our politicians and finally on ourselves because we have been too indifferent, too complacent and too unwilling to involve ourselves.

I have spent more time than I intended on the economic, social and political climate of our country but the theme of this conference is social goals, educational planning and priorities for the 70's, so I think in this introductory address we must assess where we are and establish the benchmarks from which we take off in our plans to meet the challenge of the 70's.

The balance of this paper will be concerned with suggesting an approach to the mobilization and use of our resources in science and technology in meeting this challenge. And from here on I shall draw freely on the paper presented to the Select Committee on Science and

Technology of the U. K. House of Commons by the Right Honourable Anthony Wedgwood Benn last April and on the discussions I had with him and with top U. K. scientists as recently as one week ago. The general theme is technology and the quality of life.

Mobilizing Scientific and Technological Resources

What is now quite rightly under direct challenge is the tendency for an unthinking acceptance of everything that is scientifically exciting and technically within our capability regardless of its social consequences. Technology, like all power, is neutral, and the question is how do we use it. It is the decision-making process that we are concerned with, and how it can be improved. What people want is a better method of decision-making, that takes into account wider considerations that have in the past been left out of account. They are dissatisfied with the narrow assessments that do not take sufficient account of the wider social and human consequences which may in the end turn out to be more important than any immediate short term and purely economic analysis could reveal. They also want information and the time necessary to allow these wider factors to be publicly discussed before final decisions are made.

It is therefore to the decision-making process that we must look for improvement; in fact the position is not as bad as it may sound. A great deal of progress has been made, but there is a great deal more to be done. This can be a three-stage process in making decisions. First, as far as the government is concerned, the process of analysis must be widened at the very outset. Secondly, these wider considerations must be independently examined by some inter-disciplinary groups, to be composed of those with a wider range of human experience, and who can identify those people who are most likely to be affected by these changes.

Thirdly, the whole exercise of initial proposition, evaluation, and assessment must be made public so that everyone can join in before the final decision is made.

We shall now have to push some fairly basic questions down the line, and require them to be answered at the point of initiation, by the initiators. In this way we may hope to establish an early warning system which will widen the discussion at the outset.

But these two stages of interrogation and independent assessment are not enough. There is a third essential process, the process of public discussion. Without full public discussion, decision-making would still be dependent on an entirely internal process. People today are just not prepared to accept their exclusion from the process of assessment. They do not accept that anyone should be able to secure the commitment of large chunks of scarce resources of qualified people and money without public debate, and they are absolutely right. To argue for exclusion of these issues from popular control is not only fundamentally undemocratic, it is also completely impractical.

The doctrine of limiting democratic control is based on a complete underestimation of the general level of public intelligence and knowledge. Even with all its present and unacceptable d fects the educational system and the mass media have enormously raised the level of public education and understanding in the course of a single generation. The genie of human genius has got out of the bottle and it can never be put back in again -- the cork cannot be replaced.

Judgements of this kind may be difficult to reach, but if sufficient information is more available about alternative strategies, the choice between the objectives can be made by anyone. Anyone is perfectly qualified, and fully entitled to contribute his opinion as to the purposes that technology should serve, even though he may know nothing of the first law of thermodynamics, nor be able to mend a fuse blown in his own home.

But if we are able to persuade people that they ought to be able to influence decisions, and are qualified to do so, we still face the much more difficult job of overcoming their suspicions that even if they were to make the attempt, it would be bound to fail because nobody cares two hoots what they think. But if the right to decide is exercised, it should carry with it the duty to become informed and study the evidence.

The political leadership that has the most lasting effect exists not in the confrontation so beloved in Fleet Street, and by our newspaper columnists, but in the stream of analysis, exploration, interpretation, and argument that slowly but surely changes the collective will.

But this, of course, is exactly what the parliamentary system is all about. It is based of course on the belief, that how you govern yourself, by argument, election and accountability instead of thought control, civil war and dictatorship, is what really matters. People want technology, but it must be technology with a human face.

II

THE NEED TO PLAN: UNLIMITED SOCIAL OBJECTIVES AND SCARCE RESOURCES

To begin to understand the current emphasis on planning we must have a picture of the problem with which contemporary policy makers contend. We must conjure up what the terms "competing priorities" and "limited resources" mean for the policy makers and planners for whom they are not simply statistics but hard realities. Unless educators see the problem from the vantage point of those who must make the hard political decisions, they cannot hope to influence the nature of these decisions.

CONCEPTIONS ET PERCEPTIONS
DE LA PLANIFICATION DE L'EDUCATION

par

Arthur Tremblay
président et directeur général
de l'Office de planification
et de développement du Québec

Présentation et problématique

J'imagine que c'est dans la perspective du thème général de notre colloque que nous devons aborder le sujet particulier du groupe auquel on m'a invité à participer: les conceptions ou les perceptions de la planification de l'éducation.

Comment donc formuler les trois variables qui définissent le thème général de notre colloque: les objectifs sociaux, les priorités en éducation et le financement (les "dollars") en founction de ce sujet particulier?

Vue sous cet angle, la problématique de la planification de l'éducation se ramène en fin de compte à une question fondamentale que nous pourrions formuler dans les termes suivants:

> Compte tenu des exigences du développement socio-économique global du pays, dans quelle mesure les dépenses pour fins d'éducation peuvent-elles ou doivent-elles continuer à croitre de 1970 à 1980 au même rythme qu'elles ont progressé de 1960 à 1970?

La situation québécoise m'étant plus familière que celle de l'ensemble du Canada, c'est à la lumière des données qui caractérisent la situation particulière au Québec que je tenterai de répondre à la question ainsi posée, et d'en montrer les implications sur l'aménagement do nos efforts vers un meilleur équilibre entre le développement de l'éducation et le développement de l'ensemble de la société et de l'économie. (Comme il semble bien, par ailleurs, que cette problématique s'applique à tout le secteur du développement social: éducation, santé, bien-être, main d'oeuvre, loisirs, etc.).

Prélèvements massifs du secteur de l'éducation
sur l'ensemble de l'économie

Au Québec, de 1960 à 1970, les dépenses pour l'éducation sont passées de quelque $450 millions à environ $1,700 millions. Le taux annuel de croisance: à peu près 15%.

Au cours de la même période, le produit national brut a augmenté de $10 milliards à $21 milliards. Le taux annuel de croissance: plus ou moins 7.5%.

En 1960, les prélèvements effectués au bénéfice de l'éducation représentaient approximativement 4.5% du produit national brut.

En 1970, on estime que ces prélèvements représentent un peu plus de 8% du produit national brut.

Les choses pourront-elles continuer de la même facon au cours de la prochaine décennie?

Si tel devait être le cas, si les tendances observées depuis 1960 se prolongeaient pendant encore 10 ans, il faudrait prévoir pour 1980:

a) que l'éducation exigera des dépenses de $7 milliards;

b) que l'éducation drainera 16% du produit national brut.

On ose à peine formuler de telles prévisions même à titre d'hypothèse. Il n'en demeure pas moins qu'il faut les évoquer, ne serait-ce que pour tracer un cadre à la discussion et la dégager d'une sorte d'utopie: celle de croire que les années '70 pourraient être en matière d'accroissement des dépendes pour l'éducation ce qu'ont été les années '60.

Limitation de la croissance des dépenses

Prenons donc pour acquis que le rythme de croissance de ces dépenses sera moins rapide dans les années à venir que dans les années passées et reformulons en des termes plus réalistes la question posée au début:

> Compte tenu des exigences du développement global du pays, à quel taux serait-il raisonnable d'établir la croissance des dépenses de l'éducation au cours de la prochaine décennie?

Deux facteurs doivent être soulignés et analysés soigneusement:

a) la scolarisation;

b) le coût par élève.

a) La scolaristion

A cet égard, la situation actuelle est en gros la suivante:

- Aux paliers pré-élémentaire, élémentaire et secondaire, nous avons atteint le niveau normal de scolarisation:

mis à part certains types d'enseignement aux inadaptés et certains enseignements à caractère professionnel dont l'organisation est encore à compléter, les années '60 nous auront permis à ces paliers de scolariser à peu près tous les enfants susceptibles de fréquenter l'école avec profit.

- Aux paliers collégial et universitaire, nous n'en sommes pas encore rendus là; il nous reste sans doute à parcourir un bon tiers du trajet.

Que représénteront les gains à réaliser dans les années à venir à ce point de vue des masses à scolariser?

Rappelons que pour l'ensemble de la dernière décennie, le taux moyen de la croissance des inscriptions dans la *totalité* du système d'enseignement, selon les estimations fournies par le ministère de l'Education, s'est établi à 4% *par année environ*.

Compte tenu du fait que la baisse des naissances diminuera sensiblement les inscriptions au cours élémentaire et même au cours secondaire; compte tenu également du fait que l'augmentation nécessaire de la scolarisation aux cours post-secondaires effectera des masses scolarisables relativement moins nombreuses, j'estime que pour les années '70 le taux de croissance des étudiants dans l'ensemble du système ne dépassera pas 3% par année; il pourrait même s'établir à 2.5%.

Qu'en sera-t-il du coût par élève?

b) Le coût par élève

De 1960 à 1970, la croissance du coût par élève explique plus de 70% de l'augmentation annuelle des dépenses totales pour l'éducation (le taux de croissance du coût par élève est de 11% par année).

On comprend aisément une progression aussi rapide lorsqu'on songe par exemple au rattrapage qu'il fallait effecteur en matière de rémunération du personnel enseignant.

Pour l'essentiel, les rattrapages de ce genre sont maintenant chose faite. De ce fait, il n'y a donc pas lieu de s'attendre à un acroissement accéléré des coûts.

Il faut cependant noter que le niveau de qualification des enseignants devra s'élever de facon notable. Il faut noter également que la hausse à prévoir des effectifs étudiants au palier post-secondaire affectera des catégories de personnel plus dispendieuses.

Compte tenu de ces facteurs et d'autres du même ordre, il serait normal que le coût par élève dans l'ensemble du système augmente à un rythme plus rapide que la masse des inscriptions.

Nous estimons tantôt que celle-ci progresserait à raison de 2.5% a 3.0% par année.

De combien progressera le coût par élève?

C'est ici que nous devons, à mon sens, tenter non pas seulement d'anticiper les évènements, mais surtout de les orienter.

Et pour fournir aux orientations à prendre une manière de points de repère, voici comment je proposerais, pour les fins de notre discussion, d'établir la vitesse de croisière de la croissance du coût par élève.

Nous l'avons déjà rappelé, le produit national brut a augmenté à un taux moyen de 7.5% entre 1960 et 1970.

Soyons optimistes et supposons que le produit national brut du Québec se comportera de la même facon au cours de la prochaine décennie.

Dans ce contexte, le coût par élève pourrait croître de 4.5% a 5% par année sans que l'éducation représente pour la société et l'économie une charge plus lourde qu'à l'heure actuelle.

Est-il utopique de formuler une telle hypothèse?

Notre discussion nous permettra peut-être de nous éclairer réciproquement sur ce point.

Avant de nous y engager, je voudrais cependant attirer votre attention sur quelques implications de cette hypothèse si nous devions convenir d'en faire un objectif ou même une contrainte volontairement consentie.

La notion de productivité appliquée à l'éducation

Toutes ces implications peuvent s'intégrer dans le cadre d'un concept bien connu dans les entreprises, mais qu'on répugne trop souvent à appliquer à des domaines comme l'éducation: *le concept de productivité.*

Il y a deux aspects à ce concept dont l'un, à mon sens, est tout à fait connu et a été vulgarisé tant et plus depuis une quinzaine d'années. L'autre est peut-être moins présent à notre esprit.

Le premier aspect correspondrait à ce que j'appelle la *productivité externe* d'un système d'enseignement. C'est, au fond, l'idée que l'éducation est un placement pour une société; que des investissements dans le domaine de l'éducation sont rentables pour une société par les produits que l'éducation permet de mettre sur le marché; par la main d'oeuvre plus qualifiée, plus productive, etc.

Mais, il existe une autre dimension, un second aspect: c'est celui de la *productivité interne* du système d'enseignement. Comment la définir? Je vous propose une formule qui vous paraîtra peut-être choquante; je pense qu'elle est cependant valable. A ce concept de productivité interne correspondrait ceci: *fabriquer les meilleurs finissants possibles, aussi rapidement que possible, avec le moins possible de ressources humaines.*

Comment, par ces seuls moyens, atteindre cet objectif?

Je veux évoquer, très rapidement, quelques voies d'accès à l'objectif que je viens de formuler.

Première voie de réflexion: la scolarisation

D'abord, en ce qui concerne la scolarisation, je distinguerais deux types de scolarisation. D'une part, une sorte de scolarisation brute et, d'autre part, une scolarisation nette.

Qu'est-ce que la scolarisation brute? C'est le fait d'avoir des enfants, beaucoup d'enfants, tous les enfants d'âge scolaire, à l'école.

Mais tout n'est pas dit lorsqu'on a fait cela. Il reste que la scolarisation vise à ce que les enfants finissent par sortir de l'école ("lapalissade", si vous voulez, mais peut-être pas autant qu'on pourrait le croire). Les questions alors se posent: Au moment de leur sortie, à quel palier sont-ils rendus? Combien de temps ont-ils pris pour y arriver? Le temps pris pour arriver à tel palier, c'est ce que j'appelle la scolarisation nette. Vous devinez tout de suite que s'il faut quatre ans à un étudiant pour faire les trois années d'études professionnelles prévues au niveau collégial (1), le taux de scolarisation nette est nettement déficitaire par rapport à l'hypothèse du système "qu'il faut trois ans" et que si, par contre, un autre étudiant arrive au même terme en deux ans, la scolarisation nette est beaucoup plus élevée. C'est, au fond, tout le temps de parcours des trajets possibles à l'intérieur du système qui est ici en cause, et finalement, toute la question des doubleurs.

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(1) Le niveau collégial, dispensé dans les collèges d'enseignement générale et professionnel, comprend, après le secondaire, deux ans pour la formation générale - ceux qui se destinent à l'université - et trois ans pour la formation professionnelle - ceux qui se destinent immédiatement au monde du travail.

Actuellement, notre taux de scolarisation nette est nettement en dessous de ce que nous pouvons espérer, de ce que nous devrions réaliser. Il était plus "normal", avant l'application du Règlement No 1, de doubler au cours primaire que de ne pas doubler. Et ce que j'appelle "normal" ici, c'est que doubler était plus fréquent que de ne pas doubler; la moyenne des enfants doublaient au moins une fois. Vous voyez que la distinction entre scolarisation brute et scolarisation nette se posait vraiment. La scolarisation brute et primaire, il y a trois ou quatre ans, était de 110%, c'est-à-dire que par rapport aux âges normaux correspondant à ce niveau d'études, il y avait plus d'enfants qu'il n'en fallait dans le cours primaire. C'est une facon de dire qu'il y avait trop de doubleurs. On avait un déficit de scolarisation nette de 10%. C'est là une dimension, je pense, qui n'est pas négligeable.

Notre cours classique était, lui, un système à scolarisation nette déficitaire parce qu'il demandait 15 ans d'études pour arriver à l'université alors que maintenant, on peut y parvenir en 13 ans.

Nous avons donc connu depuis quelques années, certains efforts significatifs d'amélioration de la scolarisation nette, mais le problème continue à se poser. Il est bien évident que l'on augmente les coûts à garder les enfants plus longtemps qu'il ne faudrait dans les écoles.

Deuxième voie de réflexion: le réaménagement de la main d'oeuvre de l'éducation

Avec le système d'enseignement qui est en voie de se mettre en place, est-ce qu'il faut continuer à employer une main d'oeuvre du type "enseignant" tout court, ou est-ce qu'il n'est pas possible d'imaginer une diversification des tâches qui ferait que, dans cette entreprise qui s'appelle l'éducation, on ait un phénomène analogue à celui que l'on observe depuis longtemps dans les entreprises de génie. Car, il y a des ingénieurs et des techniciens et c'est l'ensemble de cette main d'oeuvre diversifiée qui fait que la totalité de l'oeuvre est quand même accomplie. Il n'est peut-être pas nécéssaire, pour certaines tâches éducatives, d'avoir uniquement des enseignants au sens traditionnel du terme.

Et finalement, troisème voie de réflexion: les technologies de l'éducation

Je me contenterai d'évoquer cette troisième voie: c'est tout le domaine des technologies de l'éducation qui, en fin de compte, rejoint le coeur de toute la question de la productivité, c'est-à-dire la conception que l'on se fait de la situation d'apprentissage du côté de l'élève. Est-ce que cette situation d'apprentissage est inéluctablement associée à une relation élèves par maître? Evoquons un seul fait. L'enseignement programmé qui se développe depuis une dizaine d'années à un rythme effarant,

nous montre tout de suite que les situations d'apprentissage pour l'élève ne s'identifient pas nécessairement à un tel rapport élèves par maître, c'est-à-dire a la présence physique de l'élève et du maître, l'un en face de l'autre.

De ce côté là, également, il y a une voie possible d'action qui ferait que la productivité interne du système d'enseignement s'accroisse de facon très significative. A mon sens, c'est de ce côté que nous pouvons principalement chercher, d'une part, à réduire la croissance des coûts et, d'autre part, si paradoxal que cela puisse paraître, a améliorer en même temps les conditions de travail des personnels engagés dans l'éducation.

Est-ce que la décennie '70 doit s'orienter, en matière de transmission du savoir, vers des procédés tels que les personnels engagés dans ce processus amélioreront leurs conditions de travail dans la mesure où s'accroîtra la productivité interne du système? Est-ce que les gains monétaires de la main d'oeuvre de l'éducation ne devraient pas désormais être proportionnels aux accroissement de la productivité "pédagogique"?

Si nous ne relevons pas ce défi, nous ne réussirons pas à régulariser la croissance des coûts de l'enseignement - les chiffres mentionnés au début l'indiquaient de facon très nette - si nous ne régularisons pas cette croissance, nous aboutirons à une situation qui sera absolument intolérable pour la société: l'éducation prélèvera sur le produit national brut, des sommes qui rendront impossible le développement des autres secteurs essentiels au développement global du pays. Il semble hors de tout doute que cela soit vrai pour le Québec - il me semble qu'il en est de même pour les autres provinces canadiennes.

22/23

PERCEPTIONS OF EDUCATIONAL PLANNING

by

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I shall attempt to consider the topic assigned to this panel, that is, perceptions of educational planning, within the framework suggested by the title of the conference. How, then, can the three variables mentioned in this title -- social goals, educational priorities, and dollars -- be formulated with respect to this assigned topic?

Considered from this angle, the basic problem of educational planning can be worded in the form of the following question:

> Taking into consideration the demand of the overall socio-economic development of the country, to what extent can or should the expenditures for education increase from 1970 to 1980 at the same rate they rose from 1960 to 1970?

Since the situation in Quebec is more familiar to me than that of Canada as a whole, it is in the light of the situation prevailing in my province that I shall attempt to answer the question thus formulated, and to show the consequences of the suggested answer on our Quebec program to achieve a better balance between the development of education and the development of the economy and of society as a whole. (It appears, by the way, that the same basic question can and should be raised about the development of all sectors of society: education, health, welfare, manpower, etc.).

The first consideration is that in the 1960's, education carved off a massive share of the economy. In Quebec, from 1960 to 1970, educational expenses increased from some $450,000,000 to approximately $1,700,000,000, an annual rate of growth of approximately 15 per cent. During the same period, the gross national product of Quebec increased from $10,000,000,000 to $21,000,000,000, an annual rate of growth of roughly 7.5 per cent.

In 1960, amounts allocated for education represented approximately 4.5 per cent of the gross national product. In 1970, educational expenditures represent slightly more than 8 per cent of the gross national product.

Can this pace be maintained during the next decade? If it can, if the trends observed during the 1960's were to continue during the next decade, two consequences would accrue in 1980:

a. education costs would amount to $7,000,000,000;

b. education costs would drain 16 per cent of the gross national product.

Although such forecasts can hardly be contemplated even as hypotheses, they should nevertheless be mentioned, if only to provide a framework for discussion, and to put to rest a kind of utopia, in which educational expenditures can keep increasing in the 1970's at the same rate as they did in the 1960's. Let us therefore take it for granted that the growth rate of education costs will decline in the years to come, and let us re-phrase the question stated previously in more realistic terms:

> Taking into consideration the demands of the overall socio-economic development of the country, what could be considered a reasonable growth rate for education costs during the next decade?

Two major factors must be underlined and closely analyzed:

a. attendance rate;
b. per-pupil cost.

Attendance Rate

At the present time, the situation in Quebec can be summarized as follows:

At the pre-school, elementary, and secondary levels, we have reached the normal attendance rates, apart from certain types of education for exceptional children and certain vocational programs which are not yet thoroughly organized. Schooling at these levels has been, during the 1960's, made accessible to all children likely to benefit from attendance.

At the college and university levels, we still have about one-third of the way to go to attain the same attendance levels.

What gains can be achieved in the next decade with respect to attendance levels? Let us recall that the rate of increase in enrolment for the whole educational system, according to the Department of Education estimates, has averaged around 4 per cent per year from 1960 to 1970.

Taking into account the fact that the declining birth rate will decrease the enrolment at the elementary and even secondary levels; taking also into account the fact that the necessary increase in post-secondary enrolment will affect relatively less important school populations, it seems to me that in the 1970's, the rate of growth of the school population as a whole will not exceed 3 per cent per year; it could even settle at 2.5 per cent.

Per-Pupil Cost

From 1960 to 1970, the growth in per-pupil cost accounted for more than 70 per cent of the annual increase in total educational costs (the increase in per-pupil cost was estimated at 11 per cent per year). This substantial increase can easily be understood when we consider, for instance, that an upward adjustment in teacher salary scale needs to be effected. In most important areas, however, such adjustments are now completed, and no accelerated increases in costs can be foreseen.

It should, however, be noted that the level of qualification of teachers should increase considerably in the next decade. It should also be noted that the foreseeable increase in post-secondary populations will require more of the more highly-paid teachers.

Taking into account these and other similar factors, the per-pupil costs for the whole system should increase more quickly than the enrolment figures. We estimated previously that this rate would increase from 2.5 to 3 per cent per year. By how much will per-pupil cost increase?

This is an area where, in my opinion, we must try not only to anticipate events, but to shape their course. To establish some guide-posts, I propose, for the purposes of our discussion, to establish the rate of growth of per-pupil costs in the following manner:

As we have already mentioned, the Quebec gross national product has increased at an average rate of 7.5 per cent between 1960 to 1970. Let us be optimistic and assume that this rate of increase will continue in the coming decade.

> In this context, the per-pupil costs could increase from 4.5 to 5 per cent per year without increasing the amount spent on education by society and the economy.

Is it utopian to make this assumption? Our discussion may enlighten us on that point. However, before we begin the discussion, I would like to draw your attention to some implications of this hypothesis.

The first consideration deals with the concept of productivity applied to education. All of these implications can be integrated into an area accepted in business, but one which we are too often reluctant to apply to a domain such as education: the concept of productivity. There are two aspects to this notion. The first is well known, and has been popularized in the past few years. The second may be less well known.

The first aspect would correspond to what I shall call *external productivity* of an educational system. It is, in fact, the notion that education is an investment for society, and that investments in the field of education are profitable to society, since they result in better qualified, more productive individuals entering the labour market?

But, there is another dimension, a second aspect: that of the *internal productivity* of the educational system. I shall attempt to define it in terms that may shock you at first, but that nevertheless appear valid to me: *internal productivity* should be defined as the production of the best possible graduates as quickly as possible with the least possible human resources.

I would like to outline briefly some approaches to this objective.

The Improvement of the Net Attendance Rate

I would like to distinguish between two types of attendance rate: gross and net. How can gross attendance rate be improved? By bringing more children, many children, all school-age children, into school. But this is not all that is involved. School aims at having children leave school -- a self-evident truth, one might say, but perhaps not, since a number of questions arise. When children leave school, what level have they reached? How long did they take to get there? The time required to get to a certain level is what I mean by net attendance, and increasing that type of attendance rate is one way of improving productivity. If a student requires four years to complete three years of a vocational program offered at the college level in the Quebec system, the schooling rate shows a deficit. If, on the other hand, another student requires only two years, the rate will go up.

It is, in fact, the time required to cover the various courses that I mean. I am also concerned with the problem of repeaters. At the present time, the Quebec net rate is well below that which we could hope for. It was commonplace before Regulation No. 1 came into effect (Regulation No. 1 is a brief text that introduced around 1965 a number of major changes at the elementary and secondary levels) to repeat a grade in the elementary course. When I say commonplace, I mean that repeating a grade was more commonplace than not doing so. You can see from this example that the difference between gross and net schooling rates would be very significant indeed.

The gross rate at the elementary level three or four years ago was 110 per cent, which means that in relation to the target population, there were more children than needed at the elementary level. In other words, repeaters still created a net school deficit of 10 per cent. This, it seems to me, is an important aspect of the problem.

To take another example, our now nearly defunct classical course involved a net schooling deficit since, through that route, a pupil took 15 years to reach university, whereas he can now do it in 13 years.

To summarize this point, we have for some years now achieved some significant improvements in net schooling, but improvements are still needed. It is evident that it is expensive to keep children in school longer than is strictly necessary.

The Redefinition and Reallocation of Duties Within the School

Within the educational system that we are now attempting to rebuild, is it proper to keep on employing a labor force consisting strictly of teachers, in the traditional sense, or would it not be possible to imagine a diversification of tasks that would create, in this business called education, a situation similar to that which has long obtained in engineering, where a mixture of engineers and technicians performs the work at hand. It might not be necessary for certain educational tasks to involve teachers, in the traditional sense of the word.

Educational Technology

I will be brief in describing this third approach; it has to do with the whole area of educational technology that, in the final analysis, reaches the very heart of the problem of educational productivity -- our conception of the students' learning process. Is this learning process *inevitably predicated on teacher-pupil communication?* Let us recall one single fact: programs and computer-assisted instruction, which have been progressing at a furious pace in the last ten years, demonstrate that the learning process is not necessarily dependent on teacher-pupil contact with the physical presence of both.

This is another avenue to increase significantly the productivity of the entire educational system. In my opinion, it is in this direction that we must look for a way to moderate the increasing costs, and for a way to improve the working conditions of teaching staffs.

Must we, in the 1970's, choose, in matters of transmission of knowledge, systems such that the working conditions of the staff involved in the process will be improved in the same measure as the internal productivity of the system increases? Should not the financial reward of the educational labour force be from now on proportional to the increase in educational productivity?

If we do not face this challenge, we shall not be able to regulate the increase in educational costs. The figures mentioned earlier in this paper show this quite clearly. If we do not control this growth, we will find ourselves in a situation intolerable to society. Education will carve off such an important share of the gross national product that it will be impossible to develop other sectors essential to the development of the country. This is without doubt the case in the province of Quebec, and it seems to me that it is also the case in the other provinces of Canada.

3

THE THREAT OF INCREASING NUMBERS AND COSTS IN POST-SECONDARY EDUCATION

by

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The title of this paper suggests that there is cause for apprehension in the rapid growth of enrolments in education above the secondary school level. On the surface, this appears to be in contradiction to the generally accepted belief that increases in the educational level of the nation's population are not only desirable but essential, if we are to create the kind of society to which most Canadians subscribe. It should therefore be clear at the outset that the threat of increased numbers of post-secondary students does not reside in the numbers of students we educate, but rather in the implications of vastly increased enrolments for all aspects of our economy.

The paper will describe the growth in educational enrolments over the past few years with particular reference to the post-secondary level. Projections of enrolments over the next decade, taken from *Staff Study Number 25* of the Economic Council of Canada by Zsigmond and Wenaas, provide the basis for the fears expressed as part of the title of this paper. The rise in total educational costs will be described and the specific costs related to the post-secondary level will be stressed. A projection of possible expenditures for post-secondary education will be provided, with some of the implications that should be considered if these costs escalate at the anticipated rates. Finally, some alternatives will be proposed as possible solutions to the *problem* of providing higher education at costs which are within the range of possibility.

The enrolment statistics are taken from published Dominion Bureau of Statistics (DBS) material; the projections are those published by the Economic Council. The financial data are derived from published documents; the projections of costs are mine and represent nothing more than an extrapolation of existing trends.

Enrolment Growth

The forces which have contributed to the spectacular rise in educational enrolments over the past decade include the increased post-war birth rate, a broadening of the secondary school curriculum with a resultant increase in retention rates, greater accessibility to university, and the creation of community colleges with their wide variety of courses leading to wider career choices. Transcending all of these forces is the great Canadian dream of upward social mobility, which is attached to a diploma or a degree. The Canadian public has developed a set of expectations which can only be met by the provision of more opportunity for education beyond the secondary school level.

An examination of enrolment growths over the last decade reveals that the educational enterprise has grown to be Canada's largest "industry". It now absorbs over 6.3 million students at all levels; over 300 thousand full-time teachers are required to provide instruction; some 200 thousand non-teaching personnel are required to service educational activities. In other words, of all the men, women, and children in Canada, one in every three is in formal education at some level in some capacity or other. This says nothing of a growing army of students enrolled in part-time education and a large number of part-time teachers.

If one analyzes enrolment statistics by educational level one is immediately faced with the fact that the curve for post-secondary education is rising at a much faster rate than that for education as a whole. Table 1 is extremely revealing: by using 1961 as a base year, one can measure the magnitude of growth in enrolments by level of education during the past decade.

Table 1

Indices of Enrolment Growth in Canadian Education: 1961 to 1980

	1961	1965	1969	1975	1980
Elementary	100	111.4	119.4	110.6	107.4
Secondary	100	134.7	169.1	198.8	186.6
Post-Secondary Non-University	100	130.3	258.0	448.2	587.3
University	100	159.7	250.9	434.4	581.8
Total Elementary and Secondary	100	116.1	129.5	128.4	123.5
Full-time graduate enrolment	100	234.1	423.3	901.0	1519.0

It will be noted that total elementary and secondary enrolments have increased by less than 30 per cent from 1961 to 1969, while the post-secondary student population has risen by over 250 per cent during the same period. The most spectacular rise, however, is in the number of students seeking post-graduate degrees. In absolute terms, they make up a relatively small proportion of total post-secondary enrolments, but they are indicative of growth at a level of education which is extremely important for future manpower needs of the universities themselves and for Canadian society as a whole.

The indices provided for the years 1975 and 1980 are based on the assumption that no intervention will be made in the post-secondary field to inhibit the trends which have developed over the past decade. This, of course, assumes that the same measure of support which has characterized the past decade will be available in the next.

To suggest that post-secondary enrolments could rise to nearly six times what they were in 1961 is not to predict that this will occur as a matter of course. However, there are compelling reasons for accepting a projection of this magnitude, *if* no significant changes in policy are implemented.

Table 2 provides actual post-secondary, full-time enrolments for the period 1961 to 1969, and projections for the decade 1970-1980. During the period from 1961 to 1969, total enrolments in post-secondary education rose from 193,500 to 479,900, a total which could increase in the next ten years to 1,130,000, more than twice the present figure.

Table 3 shows the extent to which the relevant age groups have participated in post-secondary education and the levels to which this participation rate could rise by 1980. If enrolment in post-secondary education continues to grow at the speed which is anticipated, it is entirely possible that more than 50 per cent of the 18-21 age group will be enrolled in some form of full-time post-secondary education by 1980. This raises a number of questions related to human abilities and the normal distribution of IQ, and the post-secondary education appropriate to individuals of "average" intelligence. The traditional view would reject the assumption that over half of the 18-21 age group could profit from education as we presently know it beyond the secondary level. However important this matter is, it does not fall within the stated purposes of this paper and thus will be left for others to consider.

Growth in Expenditures *

An examination of the tables and charts provided in the appendix underlines the magnitude of the educational enterprise in terms of both dollars and people. It is readily apparent that education is Canada's largest industry. The "cash flow" in education is substantially larger than that of any single industry. No other activity in Canada can lay claim to the utilization of over 20 cents of every tax dollar collected from all sources by all levels of government. Few developed countries of the world can point to as high a percentage of the Gross National Product (GNP) dedicated to education. Even the United States cannot claim 8.5 per cent of the 6.9 billion dollars GNP for education as we did in fiscal 1969.

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* All projected costs include a 5 per cent inflation factor.

Table 2

Enrolment* Statistics from 1961-69 Actual, Projected 1970-80

Full-Time Enrolment (in thousands)

	1961	1962	1963	1964	1965	1966	1967	1968	1969
Non-university	64.7	70.5	74.1	74.0	84.4	94.0	111.2	151.9	181.5
University:									
Undergraduate	121.5	133.0	147.3	164.4	188.7	213.0	237.0	244.0	268.2
Graduate	7.3	8.4	11.1	13.8	17.2	19.7	24.2	26.1	30.2
Total University	128.8	141.4	158.4	178.2	205.9	232.7	261.2	270.1	298.4
Grand Total	193.5	211.9	232.5	252.2	290.3	326.7	372.4	422.0	479.9

	1970	1971	1972	1973	1974	1975	1976	1976	1978	1979	1980
Non-university	198.6	212.4	223.8	244.4	269.0	290.0	309.3	329.7	346.3	366.4	380.0
University:											
Undergraduate	296.1	329.4	386.4	417.4	457.7	493.8	527.8	560.0	585.6	616.7	638.4
Graduate	33.7	37.7	46.6	53.1	58.8	66.2	74.1	84.6	95.3	102.4	111.6
Total University	329.8	367.1	433.0	470.5	516.5	560.0	601.9	644.6	680.9	719.1	750.0
Grand Total	528.4	579.5	656.8	714.9	785.5	850.0	911.2	974.3	1027.2	1085.5	1130.0

* Source: Enrolment 1961-67 and 1972 to 1980 *Staff Study No. 25*

Table 3

Percentage of Selected Age Groups

In Post-Secondary Education; 1961-69 Actual, 1970-80 Projected

Percentage of Selected Age Groups Enrolled in Higher Education

	1961	1962	1963	1964	1965	1966	1967	1968	1969
Non-university 18-21	6.4	6.6	6.6	6.3	6.8	6.9	7.7	10.2	12.0
University:									
18-21 Undergraduate	12.0	12.5	13.2	13.9	15.2	15.7	16.5	16.4	17.7
22-24 Graduate	1.1	1.2	1.5	1.8	2.2	2.4	2.7	2.8	2.9
18-24 Total University	7.5	8.0	8.6	9.2	10.1	10.6	11.3	11.1	11.8
Grand Total 18-24	11.3	12.0	12.6	13.0	14.2	14.9	16.1	17.4	18.9

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Non-university 18-21	12.9	13.5	13.7	14.4	15.2	15.9	16.7	17.4	18.2	18.9	19.5
University:											
18-21 Undergraduate	19.3	20.9	23.6	24.7	25.8	27.1	28.5	29.6	30.7	31.7	32.7
22-24 Graduate	3.1	3.3	4.0	4.5	4.9	5.4	5.8	6.3	6.8	7.2	7.7
18-24 Total University	12.5	13.5	15.5	16.4	17.4	18.3	19.2	19.9	20.6	21.4	22.1
Grand Total 18-24	20.0	21.3	23.5	24.9	26.4	27.8	29.1	30.2	31.0	32.3	33.2

Table 4 underlines the rise in expenditures for post-secondary education over the years from 1961 to 1969 and provides a projection of cost levels which might be reached by 1980. It will be noted that total university costs in 1969 were five times greater than they were in 1961, with an enrolment increase only two and one-half times that of 1961.

Table 4

Index of Canadian Post-Secondary Education Costs
1961 to 1980 (current dollars)

		1961	1969	1975	1980
Post-secondary non-university		100.0	422.3	1138.6	2242.8
	University	100.0	507.7	1582.2	3187.5
	Total	100.0	486.3	1470.7	2949.9

It is anticipated that full-time university enrolments could rise to nearly six times the 1961 levels. This could result in a total cost of over 31 times that of 1961.

It will be seen from Table 5 that costs per student have risen by a factor of nearly two and two-tenths and there is every likelihood that they will rise at a more or less constant rate. By 1980, per-student cost at the university will be nearly five and one-half times greater than it was in 1961.

Table 4-a provides a striking example of the relationship of post-secondary costs to the GNP. It will be noted that during the period 1961 to 1969, post-secondary education moved up by a factor of nearly two and one-half, as a percentage of GNP. It is not unreasonable to anticipate a somewhat similar increase over the next decade. If this materializes we will be devoting nearly three and one-half per cent of GNP to post-secondary education by 1980. A formidable sum indeed, considering that this will represent the cost of providing education for less than 18 per cent of the total student population at all levels.

Table 4-a

Post-Secondary Expenditure as a Percentage of GNP

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1975	1980
				Current Dollars (in thousands)				1969 Constant Dollar			
Gross National Product	39,080	42,353	45,465	49,783	54,897	61,421	65,608	71,427	78,537	108,285*	141,528
Post-Secondary Expenditure											
Non-university	71,007	81,731	88,893	94,976	115,233	133,493	164,877	229,936	299,878	602,910	930,240
University	211,330	244,015	289,931	345,222	432,332	579,215	738,510	888,089	1,073,000	2,493,438	3,934,638
Total Post-Secondary	282,337	325,746	378,824	440,198	547,565	712,708	903,387	1,118,025	1,372,878	3,096,348	4,864,878
Total Post-Secondary Expenditure as a per cent of GNP	0.72	0.77	0.83	0.88	1.00	1.16	1.38	1.57	1.75	2.86	3.44

Source: *Perspective 1970*, Economic Council of Canada

* Assumes average annual percentage change of 5.5 per cent from 1969 to 1980.

Table 5

Index of Canadian Post-University Education
Per Student Costs, 1961 to 1980 (current dollars)

	1961	1965	1969	1975	1980
Post-secondary non-university	100.0	124.4	150.6	254.1	382.0
University	100.0	128.0	219.2	363.9	547.3
Total Post-secondary	100.0	129.3	196.2	334.8	505.2

In actual dollars, it appears that we can visualize an 8.3 billion dollar expenditure in 1980 for all forms of post-secondary education. Table 6 provides the details of this total cost by year and by post-secondary, university, and non-university levels.

In Table 7 it can be seen that actual expenditures per university student in 1969 were nearly $3,600. It is entirely possible that the cost of educating the average university student in 1980 could be close to $9,000.

Regretfully, the dollar data available on post-graduate education are not of sufficient quality to permit any meaningful analysis. It would be of great value to know what costs are related to what levels of university education by discipline and by year of study. It is hoped that improvements in university financial reporting will make this possible in the near future.

For purposes of permitting the use of inflation factors other than those selected here, Tables 8 and 9 are provided.

In both Tables 8 and 9, due allowance (3.8 per cent per annum) has been made for internal increases in costs; such factors as an "older and wiser" faculty, for example, have been accounted for. But, no increase is allowed for inflation. For example, the base levels of various categories of faculty are projected forward with no changes except those resulting from statutory increases to individuals.

Table 6

Post-Secondary Education Finance* Statistics from 1961-69 Actual, Projected 1970-80

Total Cost

Current dollars in thousands

	1961	1962	1963	1964	1965	1966	1967	1968	1969
Non-university	71,007	81,731	88,893	94,976	115,233	133,493	164,877	229,936	299,878
University	211,330	244,015	289,931	345,222	432,332	579,215	738,510	888,089	1,073,000
Total Post-secondary	282,337	325,746	378,824	440,198	547,565	712,708	903,387	1,118,025	1,372,878

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Non-university	354,700	412,481	474,456	568,474	689,985	808,520	936,251	1,083,394	1,233,867	1,416,502	1,592,580
University	1,293,476	1,568,985	2,012,900	2,378,700	2,837,800	3,343,700	3,902,300	4,537,100	5,200,200	5,957,000	6,736,100
Total Post-secondary	1,648,176	1,981,466	2,487,356	2,947,174	3,527,785	4,152,220	4,838,551	5,620,494	6,434,067	7,373,502	8,328,680

* Operating Expenditures only

Total Cost: Non-university estimate
University from 1961-67 actual, 1968 preliminary, 1969 estimate, 1970-80 projection.

Table 7

Post-Secondary Education Finance* Statistics From 1961-69 Actual, Projected 1970-80

Cost per Student

Current dollars

	1961	1962	1963	1964	1965	1966	1967	1968	1969
Non-university	1097	1159	1200	1283	1365	1420	1483	1514	1652
University	1641	1726	1830	1937	2100	2489	2827	3288	3597
Total** Post-secondary	1459	1537	1629	1745	1886	2182	2426	2649	2861

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Non-university	1786	1942	2120	2326	2565	2788	3027	3286	3563	3866	4191
University	3922	4274	4648	5056	5494	5971	6484	7038	7637	8284	8981
Total** Post-secondary	3119	3419	3787	4122	4491	4885	5310	5769	6264	6793	7371

* Operating Expenditures Only.
** Weighted Average

Total Cost: Non-university estimate
University from 1961-67 actual, 1968 preliminary, 1969 estimate, 1970-80 projection.

Table 8

Post-Secondary Education Finance* Statistics, Projected 1970-80

Total Cost

Constant Dollars (1969) in thousands

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Non-university	337,819	374,036	409,778	467,537	540,421	602,910	666,851	732,923	795,105	869,100	930,240
University	1,231,803	1,422,513	1,738,229	1,956,157	2,222,212	2,493,438	2,771,545	3,069,748	3,350,660	3,654,610	3,934,638
Total: Post-secondary	1,569,622	1,796,549	2,148,007	2,423,694	2,762,633	3,096,348	3,438,396	3,802,671	4,145,765	4,523,710	4,864,878

* Operating Expenditures only.

Table 9

Post-Secondary Education Finance* Statistics, Projected 1970-80

Cost per Student

Constant dollars (1969)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Non-university	1701	1761	1831	1913	2009	2079	2150	2223	2296	2372	2448
University	3735	3875	4014	4158	4302	4453	4605	4762	4921	5082	5246
Total: Post-secondary	2971	3100	3270	3390	3517	3643	3773	3903	4036	4167	4305

* Operating Expenditures only.

Implications of Projected Enrolments and Costs

It would be impossible within the limited scope of this paper to explore in depth all the implications of the projected enrolments and related costs. However, it may be useful to raise some questions about the possible effects of trained manpower outputs of the magnitude anticipated; to query the capacity of our society to provide occupational opportunities for the mix of skills which the graduates of the 1980's will possess.

The recent trend toward vastly increased enrolments in the social sciences suggests a growing concern on the part of the Canadian undergraduate with the nature of society and man's role in it. One can hardly quarrel with the desire of young people to engage in a process of discovery of self. But what opportunities will exist for economic utilization of self-knowledge and the skills associated with interpersonal relationships? What will be the market value of an under-graduate degree in sociology, anthropology, political science, or psychology?

Perhaps these are not the appropriate questions to pose, but if we face a 1980 society not grossly unlike that of 1970, they are some of the questions which must be answered.

It would appear that there is a critical need for immediate examination of future skilled manpower needs. It is true that speculating about the future of society, its productive machinery, its products, and their distribution, is an extremely hazardous business. However, some planning is essential to avoid creating a situation in which literally hundreds of thousands of young graduates face a future full of dissatisfaction, as a consequence of expectations which do not match the reality they face.

On the financial side, the difficulties to be faced are equally complex. It appears that an annual expenditure in 1980 for post-secondary education alone, which could be 20 per cent times the total cost of education in 1969, is likely to be beyond the capabilities of our economy. Total educational expenditures per capita have tripled over the past decade. Can this rate continue unabated without sacrificing other important social programs? Will Canada be forced to choose between health services or old age pensions and education? What proportion of the total GNP can be dedicated to education without starving other other needed developments.

Difficult questions do not usually lend themselves to simple answers. The questions related to the financing of post-secondary education are extremely difficult indeed and answers are not readily available. Despite the lack of suitable solutions, there are some signs that immediate measures are being applied. The recent announcement in some quarters that some differential treatment will be accorded out-of-province students is an indication that steps are already being taken to limit growth and escalating costs. No attempt is made on the part of the writer to sit in judgement on the action planned, but it is not

inappropriate to raise the question of the consequences of discouraging interprovincial movements of university students. If indeed we do believe that Canada is a nation, can we further the cause of national unity by inhibiting interprovincial transfers of university students? On the contrary, the cause of Canadian unity may be served better by encouraging the youth of the Atlantic Provinces to register in universities in Western Canada, while those of the West take their places in institutions on the Atlantic coast.

Possible Solutions

It is highly unlikely that any single solution will answer the complex of problems that relate to the financing of higher education in Canada. A variety of actions can be considered:

1. Increasing Educational Efficiency

The term efficiency, as normally employed, has objectionable overtones to most people associated with post-secondary education. And rightfully so. An educational institution is not a manufacturing plant where one can apply simple measures of productivity, effectiveness, costs, and benefits. It is naive to expect that a university can turn out graduates with particular degrees in the same way that consumer products are manufactured. The human organism is incapable of being stamped, moulded, buffed, polished, and packaged like the hub caps on cars. However, there is little excuse in the year 1970 to retain all of the instructional methods associated with the University of Bologna, A.D. 970. A thousand years of technological development cannot be dismissed as irrelevant to the university. Communication strategies employing modern electronic devices have made many teaching activities completely redundant.

An enormous gap exists between the state of the communications and teaching art inherent in a variety of devices, and their deployment in education. The oft-cited failures of ETV and CAI are not failures of technology but failures on the part of education to develop the appropriate strategies required to introduce modern devices. Salvation may not reside in the computer or the multi-media carrel, but hell-fire and brimstone await without.

There are other ways in which universities can become more efficient in their utilization of scarce resources. From what one sees, minimal effort is made to coordinate the curricular offerings of universities. It is becoming increasingly difficult to justify the inclusion of courses in which the total registration is less than the maximum required for effective teaching. Recent developments in video tape recording and computer assisted instruction suggest ways in which considerable savings can be effected.

It is not within the scope of this paper to enter into a detailed discussion of ways in which post-secondary institutions should move to reduce costs. However, it seems clear that unless the institutions themselves move quickly to become more effective managers of the teaching-learning environment, someone else will do this for them. In fact, there are already some signs that education is being offered for sale by entrepreneurs who recognize the existence of a market for their product. At current levels of expenditure, education offers powerful attractions to commercial interests. Thus far, only the giants have entered the field in the United States. It would not be unreasonable to assume that "packaged educational deals" will be offered to provincial authorities who must face the realities of life. Realities include re-election.

2. Stretching Education

The belief that total formal education must be crowded into the beginning years of one's life is based on a set of unproven assumptions about human learning. In fact, there is a growing body of evidence that maturity and motivation make as great a contribution to learning as all other relevant factors put together. It should, therefore, be possible to create conditions in which it would be advantageous for students to spend every second year work. Thus, a four-year undergraduate program would require eight years to complete. This would have the effect of reducing the total undergraduate enrolment by 50 per cent.

Another educational phenomenon which is growing of its own accord is part-time enrolment. It should be possible to create conditions making it profitable for both students and universities to encourage this type of education. There are no strong reasons why the post-secondary education processes cannot be extended over the working life-span of an individual. This type of continuous education would be most appropriate for those courses designed for the personal enrichment of individuals. Much of the course work related to the quality of life is rooted in the humanities and many of the social sciences. These lend themselves ideally to television, individual study, personally directed research, and other learning activities which require a minimum of expensive space and staff time. Recurrent and continuing education present possible solutions to the dilemma we face and merit fuller exploration than they have had thus far.

3. Learn Now - Pay Later

The notion of lending students sufficient money to pay the full cost of their education is not new. However, there is no evidence that this method of financing post-secondary education is widely used anywhere. To ask young people to assume a large debt before they have any prospect of employment is not entirely acceptable to some, yet it may provide a partial solution to the problem of financing post-secondary education. It should be within the realm of possibility to devise a method of imposing an educational surtax on the income tax returns of all graduates of universities. Are there any fundamental differences between obtaining a mortgage on a house and mortgaging some part of one's future earnings?

In terms of demand on the economic resources of Canada, it makes no real difference where the dollars originate to pay the cost of university operations. The fundamental difference resides in who assumes responsibility for the repayment. As matters stand now, students are paying approximately one-fifth of their educational costs; the balance is paid out of taxes borne by all citizens. I believe that it is necessary to recognize that a considerable, but largely unmeasurable, benefit accrues to society as a whole from creating larger numbers of highly educated citizens. It would, therefore, seem unreasonable to suggest that all the costs of post-secondary education should be paid for by the individuals who profit most directly. Existing fee structures place a disproportionate burden of post-secondary education costs on all taxpayers. A national education bank which provided all post-secondary students with a line of credit sufficient to pay a significant (80 per cent?) proportion of the total cost of their education might go a long way toward permitting continued expansion of higher education. Repayment plans could vary with income and other criteria.

The Need for National Planning

It is essential to recognize that education is a matter of provincial concern and that federal intervention is not desired. The autonomy of the provinces in matters of education has been clearly defined and requires no restatement here. However, there are areas of national concern which impinge on education where it is essential that national planning be coordinated.

Canadian unity is more likely to be realized if we encourage inter-provincial mobility of both students and teachers. We are unlikely to achieve a sense of Canadian nationhood by decrying the Americanization of our industries and university departments. Something positive is needed and what can be more positive than living and learning together? It might be well to consider the possibility of paying a premium for each out-of-province post-secondary student in direct proportion to the distance he is removed from his home province.

There are other matters of national importance transcending provincial jurisdictional boundaries. Such areas as health care, pollution, and population mobility must be the concern of all Canadians no matter where they live. Education plays an important role in each of these and in many others. Given the existing division of powers between the provinces and the federal government, it is essential that some mechanism be created which will respect the autonomy of each of the provinces in education, yet allow for the implementation of educational programs which meet national objectives.

Embryonic structures already exist in such organizations as the Council of Ministers of Education and the Educational Support Branch of the Department of the Secretary of State. The immediate problem is to devise a method for bringing these agencies together so that commonly accepted goals can be discussed in a non-partisan manner for the greater good of all Canada.

Table 10

Enrolment and Employment Statistics in Canadian Education, and Some Selected Demographic and Labour Force Statistics; Canada, 1961-69 ('000)

		1961	1962	1963	1964	1965	1966	1967	1968	1969
i.	Full-time enrolment.....	4,602	4,800	5,010	5,220	5,408	5,595	5,825	6,000	6,177
ii.	Employment in education.....	294	315	340	360	389	422	470	515	537
iii.	Education enterprises (includes enrolment and staff) (excludes non-civilians.....	4,896	5, 115	5,350	5,580	5,797	6,017	6,295	6,515	6,714
iv.	Total population.....	18,238	18,583	18,931	19,291	19,644	20,015	20,405	20,744	21,061
v.	Employed in public administration and defence (excludes non-civilians).....	332	342	345	353	362	376	399	408	420
vi.	Employed in all industries including education.....	4,682	4,869	5,021	5,264	5,553	5,852	6,038	6,189	6,516
vii.	Full-time enrolment as a percentage of total population.....	25.2	25.8	26.5	27.1	27.5	28.0	28.5	28.9	29.3
viii.	Employment and education employees as a percentage of total population.....	26.8	27.5	28.3	28.9	29.5	30.1	30.9	31.4	[illegible]
ix.	Labour force of all industries as a percentage of total population.....	25.7	26.2	26.5	27.3	28.3	29.2	29.6	29.8	30.9

(1) Source: Estimates of Employed by Province and Industry, D.B.S. Cat. No. 72-009, page 1[illegible].

Table 11

Educational Expenditures and Other Selected Financial Indices, Canada, 1961-1969

'000

	1961	1962	1963	1964	1965	1966	1967	1968	1969
i. Expenditures on Education.....	100.0	122.1	131.5	149.1	177.0	214.2	260.8	301.3	353.2
ii. Gross National Product.....	100.0	108.4	116.3	127.4	140.5	157.2	167.9	182.8	201.0
iii. Personal Income.....	100.0	108.7	116.0	124.5	138.0	155.4	170.7	187.6	208.6
iv. Per Capita Expenditures on Education.....	100.0	119.2	126.0	.40.4	163.5	194.2	232.7	263.5	304.8

Table 12

Indices of Selected Educational, Population, and Labour Force Growth; Canada, 1961-1969

'000

	1961	1962	1963	1964	1965	1966	1967	1968	1969
i. Full-time enrolment.....	100.0	104.3	108.9	113.4	117.5	121.6	126.6	130.4	134.2
ii. Total population of Canada...	100.0	101.9	103.8	105.8	107.7	109.7	111.9	113.7	115.5
iii. Employed in education (includes teaching and non-teaching staff).....	100.0	107.1	115.6	122.4	132.3	143.5	159.9	175.2	182.7
iv. Employed in public administration (excludes non-civilians).....	100.0	103.0	102.9	106.3	109.0	113.3	120.2	122.9	126.5
v. Employed in all industries (includes education).....	100.0	104.0	107.2	112.4	118.6	125.0	129.0	132.2	139.2

Table 13

Education Finance Statistics and Selected Related Data: Canada, 1961-1969

'000

	1961	1962	1963	1964	1965	1966	1967	1968	1969
i. Expenditure on Education.....	1,889.9	2,308.2	2,484.5	2,817.9	3,345.6	4,048.8	4,928.1	5,694.1	6,674.7
ii. Gross National Product.....	39,080	42,353	45,465	49,783	54,897	61,421	65,608	71,427	78,537
iii. Total Personal Income.....	29,411	31,966	34,109	36,618	40,591	45,702	50,207	55,170	61,343
iv. Expenditure on Education as a percentage of GNP.....	4.8	5.4	5.5	5.7	6.1	6.6	7.5	8.0	8.5
v. Expenditures on Education as a percentage of total Personal Income.....	6.4	7.2	7.3	7.7	8.2	8.9	9.8	10.3	10.9
vi. Expenditures on Education Per Capita.....	104	124	131	146	170	202	242	274	317
vii. Expenditures on Education as a percentage of net government expenditure.....	14.3	16.3	16.3	17.1	18.5	19.1	20.7	20.9	21.0

FIGURE 1

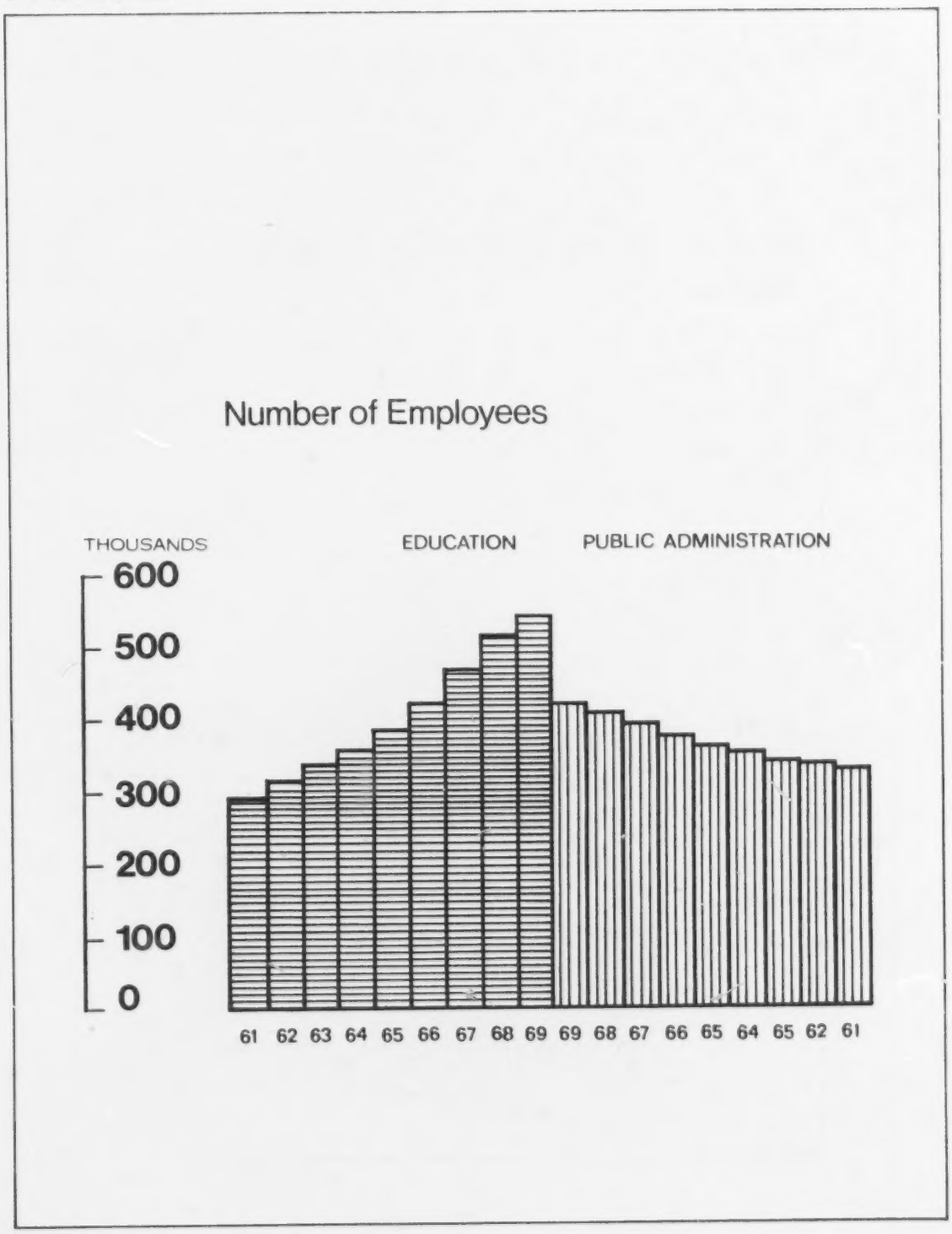

Number of Employees
THOUSANDS
EDUCATION
PUBLIC ADMINISTRATION
600
500
400
300
200
100
0
61 62 63 64 65 66 67 68 69 69 68 67 66 65 64 65 62 61

FIGURE 2

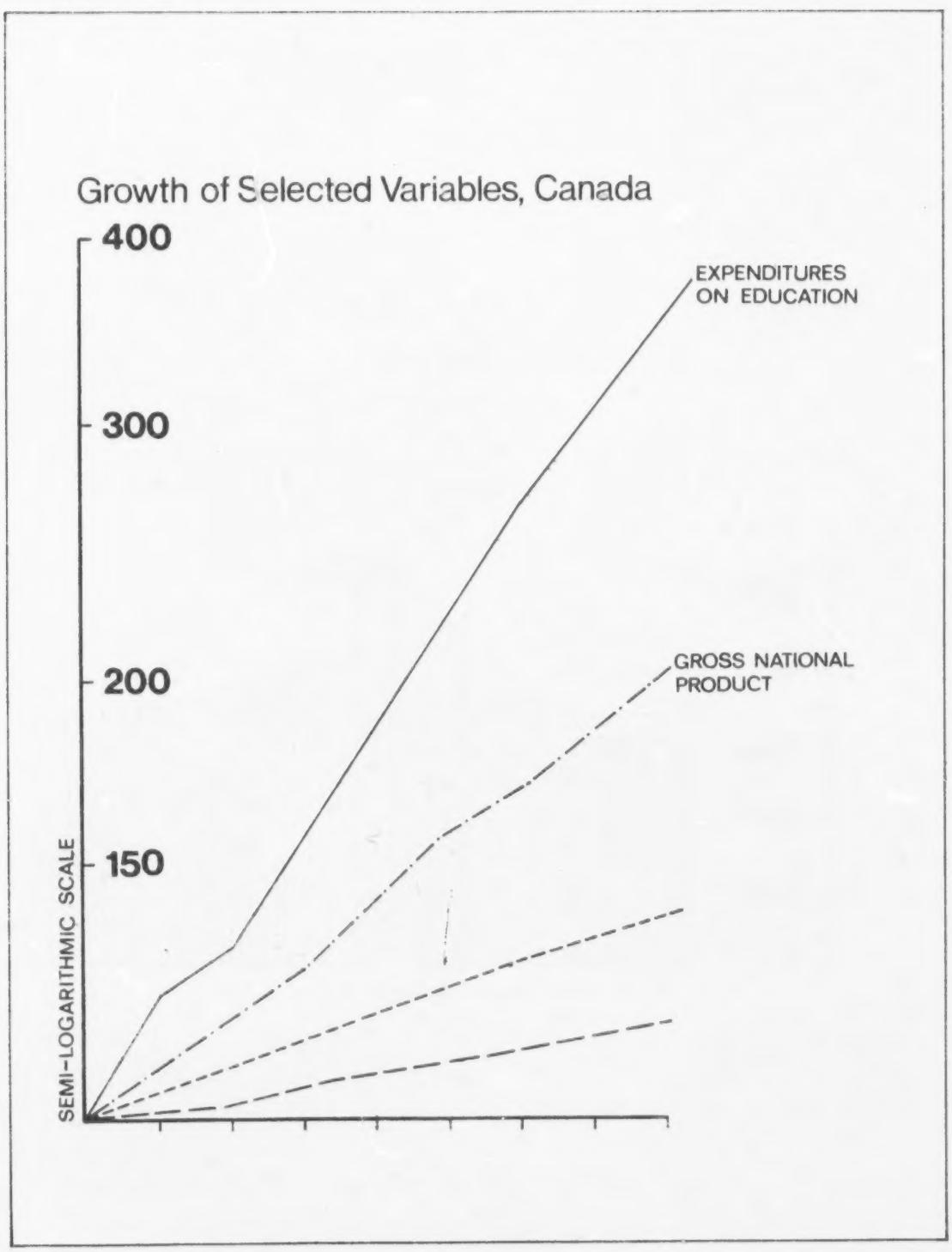

Growth of Selected Variables, Canada
400
300
200
150
SEMI-LOGARITHMIC SCALE
EXPENDITURES ON EDUCATION
GROSS NATIONAL PRODUCT

FIGURE 3

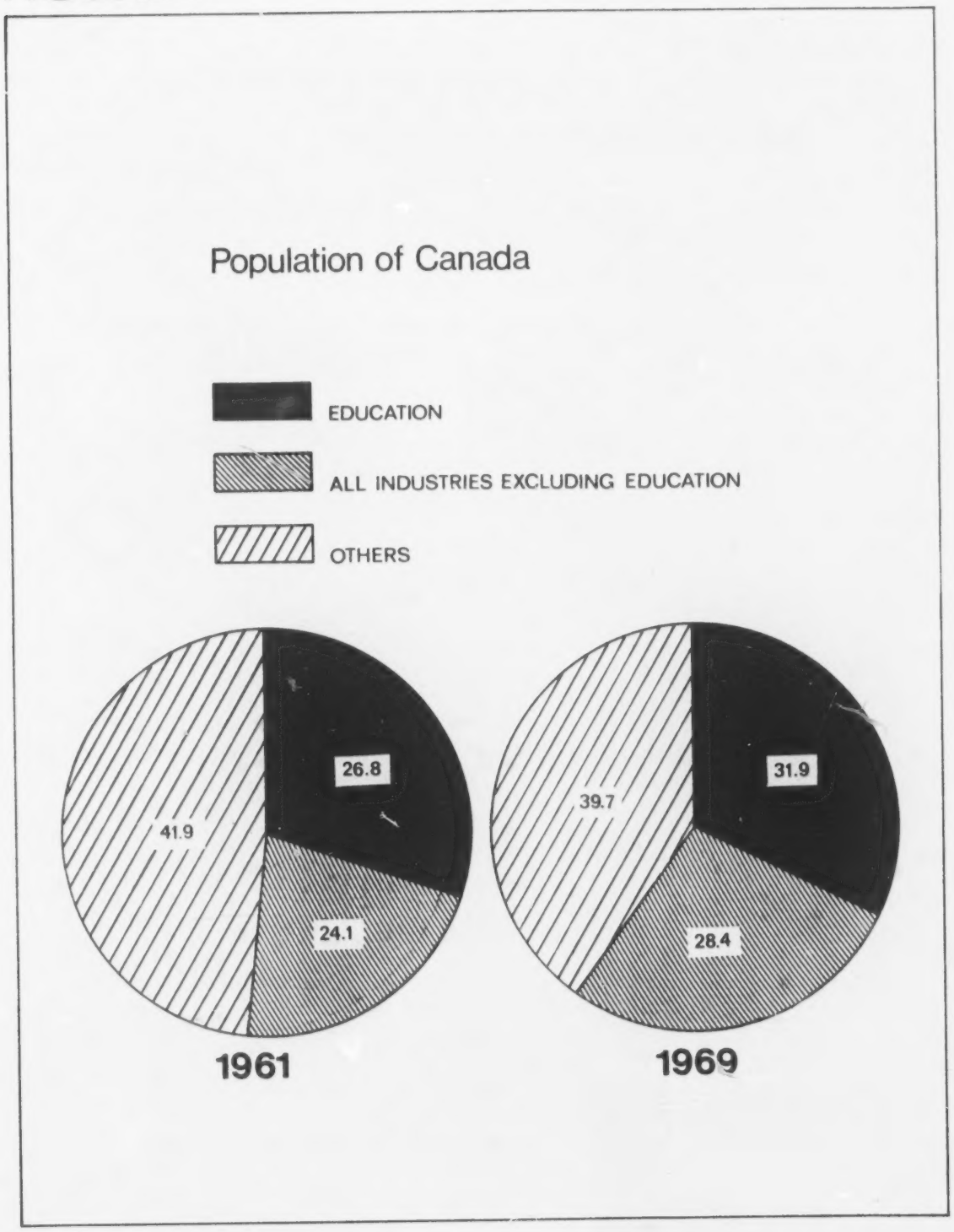

Population of Canada
EDUCATION
ALL INDUSTRIES EXCLUDING EDUCATION
OTHERS
26.8
41.9
24.1
1961
31.9
39.7
28.4
1969

FIGURE 4

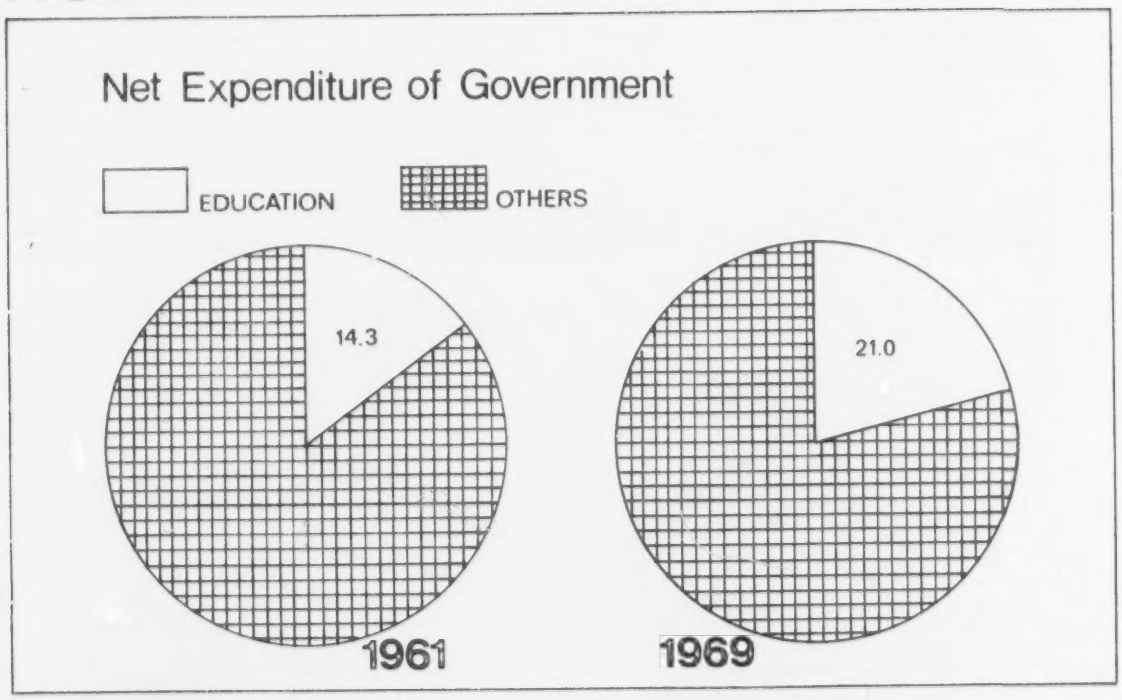
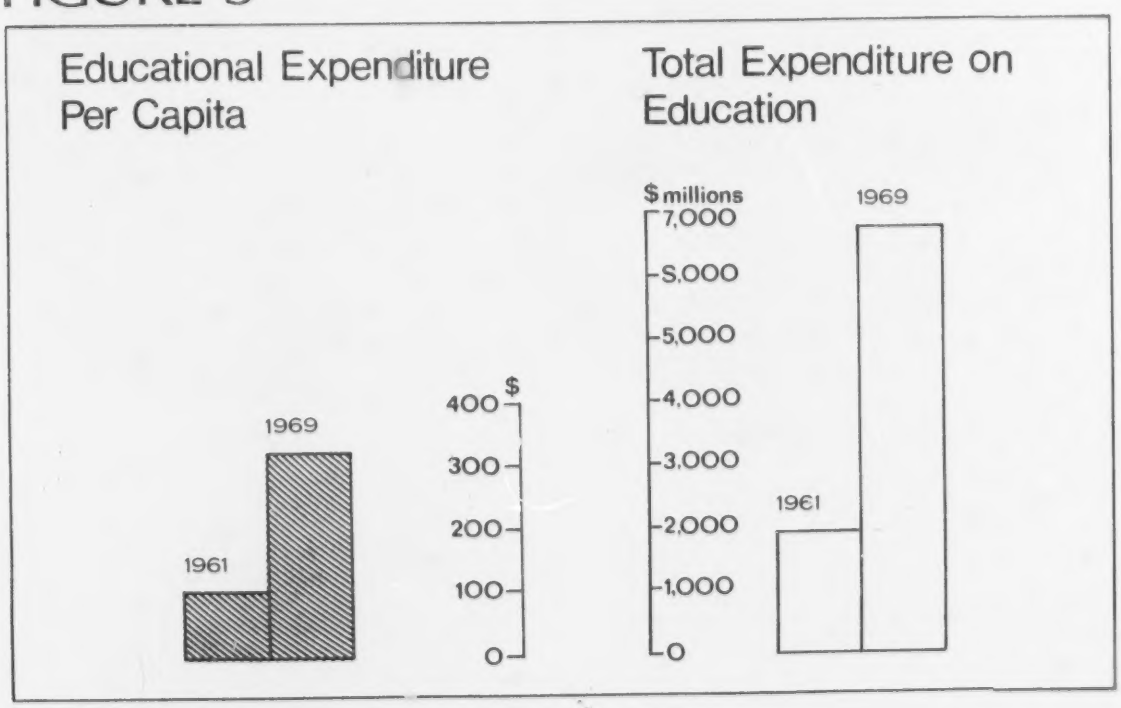


FIGURE 5



Conclusion

This paper has attempted to highlight the impending crisis which post-secondary education faces if no steps are taken to meet the challenge of the 70's. Rising enrolments and increasing costs have been documented as clearly as the data base makes possible. Projections of these costs and enrolments have been made, based on clearly stated assumptions. Some suggested plans of action have been put forward for consideration as possible alternatives.

5A/5B

III

INSTITUTIONAL RESPONSES TO PRESSURES FOR PLANNING

There are no simple or definitive answers at this time to the question "How should planning be conducted?" So, instead of trying to find them, the best we can do is look to the experiences of others for clues to the improvement of our own practices, clues which will help us capture the essence of public decision making in our society and which will help us make the best use of all of the problem solving tools at our disposal.

4

50/51

EDUCATIONAL PLANNING DILEMMAS

by

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It would seem appropriate at this first working session of the conference to discuss educational planning within the broad perspective of social planning in general. Thus, while it may duplicate some of what the other panelists have said, I would like to base my presentation on questions which have emerged in our Department, as we discussed appropriate strategies and structures for educational planning in Manitoba.

Planning has been variously defined as a process of social engineering, as a process of identification of strategic variables, as the process of establishing priorities, and as the process of identification of decisions which will have to be made in the future. Whatever planning is, only within the past decade has the speed of societal change made planning an appropriate and legitimate specialty area for study and practice in education. Prior to the 1960's everyone did planning, but on a very narrow, short-term basis.

I do not propose, this morning, to discuss the planning process. This will, no doubt, be done at length during the next few days. Rather, I will pose some questions and problems for our joint consideration.

Education Within Social Policy

I would like to place before this forum some of the apparent dilemmas which have been uppermost in our minds during deliberations on planning in the Manitoba Department of Youth and Education. Before I do, however, I will state one reason why I feel that, frequently, educational planning has tended to make situations which were inherently bad, efficiently bad. It is my conviction that we have tended to treat educational problems as different and separate from other social problems. Although education is, as Senator Cameron said, the most significant lever of power in ameliorating social problems, we cannot continue to plan educational services apart from other *people services*, such as health, welfare, recreation, and even more importantly, business, industry and technology. In other words, education is *spilling over* into pre-school and post-school activities. Education is becoming accepted not so much as a means to life fulfillment, but as life fulfillment itself. In addition to this kind of vertical spill-over, there is a horizontal diffusion into the areas of recreation, health, and welfare. The sooner the educational myth of planning, programming, budgeting, and evaluating education apart from other social services is killed, the sooner we will be able to achieve more effective social development.

Those of you who were at the CEA conference in Edmonton last month may recall the Director of CERI for OECD, saying:

> *When viewed in terms of the destiny and happiness of individuals, the relationship between education which fits people for jobs, which provides social equity and develops the talents of the individual, is complex and subtle and cannot be reduced to the slogans of* education for manpower, education for equity, *or* education for individual development. *In the life of the individual these purposes meet and integrate to the extent that economic and social goals, the quality of life and the satisfaction of the individual, are intimately linked.*

Social Planning Dilemmas

On the assumption that a significant part of our job here can be facilitated by posing appropriate questions, I would like to state some of those which to me seem fundamental. The first is the question of a planned system versus individual autonomy and freedom. Is the price of planned social development--central control--or can the decision-making apparatus that Senator Cameron alluded to, be improved to the point where these two are not incompatible? Related to this is the question of implementation. For planning to be anything more than a meaningless exercise, there must be some commitment to implement the plans. Yet implementation itself implies central control over individual self-determination.

The second dilemma relates to planning versus operating or managing. The former (planning) requires long-term abstract, creative, *divergent* thinking. The latter (operating-managing) requires short-term, specific *doing* activities which promote *convergent* thinking. Unfortunately, when a conflict does occur between these two, the immediate exigencies of operating and managing usually win out.

Thirdly, there is the dilemma of planning versus over-planning. Plans must be made flexible and adaptable. Over-planning could result in specific, rigid, non-adaptable systems, with the accompanying waste, duplication and inefficiency. Five-year plans and grand designs are fine so long as they do not limit adaptability to unanticipated conditions.

The fourth question is that of inventing the future versus merely accommodating to it. I suspect that we have greater possibility for inventing the future than we realize. Certainly in the area of technological development, whatever man can intellectually create, technology has demonstrated the ability to achieve. It would seem appropriate here to state a fundamental difference between planning and forecasting. Planning is a very creative activity related to inventing the future. It involves outlining alternative modes and methods. Forecasting, on the other hand, implies mere extrapolation of the present with little capacity to really affect the future.

Finally, there is the hoary dilemma of whether education can or should be a force for maintenance or change of society. As you will realize, these questions have been over-simplified for the purpose of clarifying some of the parameters of the planning problem.

The Role of Government in Social Planning

What is the role of government in social planning?

Levels of Attack

In a recent article from the Educational Policy Research Center, Harman suggested that there are three levels at which social problems may be attacked. The first of these is the surface level. Here the problems are such things as poverty, crime, civil disorder, and pollution. The usual government approach is to treat these symptomatically by supplying welfare payments, increasing police protection, calling in the national guard or the armed forces, or by invoking the War Measures Act. These are, at best, partial solutions, and tend to be remedial *pothole-filling*.

The second level is related to the institutions of society, the built-in power structures and traditional social statuses and roles. To attack the same problems of poverty, crime, and civil disorder at the second level would imply an alteration of our social institutions to incorporate less economic, political, and social injustice.

Finally, the third level is that of the most basic assumptions, attitudes, and felt values held by the individual and promoted by the culture. Here the problems of crime, poverty and civil disorder are seen as rooted in individual attitudes of despair, anomie, and alienation. While all three levels of problems must be the concern of government, it is the second and third levels which are the focus of planning--digging *post holes* for the future rather than filling potholes.

What are the appropriate mechanisms for government planning? Of present government structure, Dror says:

> *Given the present structures, staffing, and modes of operation of contemporary governments...there is little probability that needs, possibilities, and demands can result in more than lip service to futures and, perhaps, some marginal improvement in their consideration.*

Basic Questions

Analogous to some of the questions posed earlier are several related to structures for government planning. The first is the problem of centralization versus decentralization. If we centralize planning, no doubt we will get a coordinated effort. However, there is the disadvantage of the *let George do it* syndrome. When centralized planning units are set up, the temptation of many others in the particular

department of government is to say: *Well, he's hired to do that; let him do it.* Decentralized planning, however, would have advantages in the involvement of all people at all levels, but would suffer some lack of coordination.

The second question is that of permanent staff versus consultants. Consultants, of course, can provide a sort of *commando approach* --get in, do your thing, and get out. They provide short term, specialized, and objective expertise and valuable reports, but seldom exhibit any commitment to implementation. On the other hand, having permanent staff rather than consultants do planning implies a more long-term development of expertise, with a commitment to implement, but with the disadvantages of the convergent thinking resulting from operation activities.

The third and final question at the implementation level is the plan versus the planning. A plan maps out an area, but it can be too limiting. The method of planning or decision-making, may well be much more important than the plan or the decisions that are made. It is the process not the product of planning which will have lasting effects through establishment of an innovative working climate for all members of the organization.

A Planning System

I would like to suggest some approaches to structure, personnel, and processes for effective planning.

Structure

The common structural principle of government organizations at the present time appears to be division by area of responsibility or activity, an approach ignoring the dimension of time. To take this dimension into account, government must make a significant commitment to planning by establishing planning units at all levels located in a staff position to line departments. One reason for the ineffectiveness of combining responsibility for the present and the future in the same unit is the tendency for the present problems to drive the future out of consideration, in the sense that limited resources of time and energy tend to be allocated first to the more immediate need. Another reason is that the temperament, knowledge, method, strategy, and orientation required for dealing with the present are different from those desirable for dealing with the future. (This relates to the dilemma of planning versus operating.) However, small planning units attached to government branches, together with senior planning offices, should provide a creative planning input and a degree of coordination and integration of plans. In addition, these small planning units would provide additional *connective tissue* between departments, thus helping to solve the perennial inter-department communication problem.

Personnel

With regard to personnel it would be an empty gesture, indeed, to establish planning units without appropriately qualified people to staff them. Dror has his own Malthusian principle here: *The complexity of problems increases at a geometric rate while the manpower qualified to deal with them increases at an arithmetic rate.* To produce planners, we need university programs on planning, not only to provide professors of planning, but to provide a supply of people who are not only knowledgeable about planning, but prepared to get it in an operating environment. In addition, we need large in-service programs on planning for senior civil servants, and civil servant personnel policies which promote turnover, change, and the injection of new ideas. We might also try to get some politicians to think beyond the next election.

Processes

In the area of planning processes, one of the biggest problems in government today is under-utilization of personnel. Not that civil servants are not doing things; on the contrary, most of them are working extremely hard. But that is just the point; they are working extremely hard at piles of administrivia. They are too busing *doing* to be *thinking*. Any technique or process which places these people in an environment which utilizes their thinking capacity will bring significant improvement. It does not matter whether this technique is called PPBS (with more emphasis on PP and less on BS), or management by objectives, or is the work associated with the development of a management information system. Any of these techniques, appropriately administered, will result in improved planning.

Another process, and the last to be suggested, is the provision of an *information-rich environment*. Too long, administrators have operated in an *information-poor environment*. A comprehensive system of basic and applied research information, together with forecasts, projections and *meaningful* statistics will provide an *environmental press* for comprehensive planning.

Conclusion

Summary

Let me summarize briefly what I have attempted to say. First, educational planning must be an integral part of social planning. Secondly, educational planners must seek solutions to some dilemmas:

(a) planning and implementing versus individual autonomy and freedom,

(b) planning versus operating,

(c) planning versus over-planning,

(d) inventing the future versus accommodating to it,

(e) planning versus forecasting, and

(f) education for maintenance versus education for change in society.

Thirdly, I presented some suggestions for structure, personnel, and procedures for educational planning in government.

Prospects

I would like to conclude by looking very briefly at the prospects for educational planning. There are some very good signs. The Worth Commission is one. However, there is no continuing commitment to planning. As with all commissions, it will present a report and then fold its tent and silently steal away. Departments of planning in universities, and institutes such as OISE are also good signs. Similarly, several governments have offices of educational planning. Manitoba has the Planning and Priorities Committee of Cabinet, a Secretariat reporting directly to the Cabinet. Several provinces are also on the way to PPBS, or similar types of administrative systems. Lest I be accused of being a kind of Pollyanna, however, I would like to suggest that, as with research offices in departments of education doing fairly limited kinds of research, planning departments, I suspect, do fairly limited kinds of planning.

You will note that I have not yet mentioned finances. Let me suggest that, while the current economic squeeze may be the *bête noire* of most educators, it is this same economic squeeze which may force us to do a quantity and quality of educational planning which might not otherwise be achieved.

5

THE ALBERTA COMMISSION ON EDUCATIONAL PLANNING

by

W. H. Worth
Commissioner, Alberta Commission on Educational Planning

As most of you know, the Royal Commission has been and remains a typical Canadian Structure for planning, employed at periodic intervals in the history of most governments. Typically the Commission examines current problems, evaluates existing practices, and recommends changes or solutions to decision-makers in a lengthy report.

The Commission on Educational Planning is, however, both different from and similar to its prestigious predecessors.

It is different because of its orientation, scope, and organization. Its orientation is concerned with the *future* in an effort to avoid the mistakes of the past, to anticipate new needs, problems, or alternatives, and to suggest solutions or propose interventions. Its focus is on *educational planning* rather than simply on education.

Its *scope* includes *all* levels and forms of education.

Its *organization* includes but *one commissioner* who, in turn, recruited a commission board of eight persons, established three task forces with about twelve members on each, to consider different levels and forms of education - the N-12 system, post-secondary education, lifelong education (adult, continuing, retraining), and arranged for appropriate support and research staff. It had made available to it at the outset of its work an established and continuing research capability - the Alberta Human Resources Research Council.

That it is a Commission with a difference is clearly evidenced in the following excerpts from its terms of reference:

> *Enquiring into current social and economic trends within the province and determining the nature of Alberta society during the next two decades;*
>
> *Examining the needs of individuals within that society, and the changes that may occur;*
>
> *Studying the total educational organization, including elementary and secondary schools, colleges, technical institutes, universities, and adult educational programs to decide how they can be adapted to future trends and needs;*
>
> *Establishing bases for priority judgements of government on the course of public education in Alberta for the next decade;*
>
> *Considering the financing of the total educational organization;*

Enquiring into and recommending on the appropriate permanent structures and processes for the administration and coordination of the total educational organization and for long-range educational planning.

At the same time, however, CEP is performing a "bridging" function between traditional and emerging approaches for studying and changing public policy in education. Thus, it is similar to its predecessors in that part of its work is being carried forward in typical Royal Commission fashion, including the receipt of submissions and the conduct of public hearings. Typically, the 300 briefs and 35 hearings (to date) have been largely concerned with finding solutions for immediate problems and airing past grievances.

Although our major commitment is towards an anticipation of the future, the Commission is taking an approach to its work which we hope will enable us to be both visionary and realistic. We are, therefore, using what might best be described as a kind of "mixed" model (hopefully, not a "mixed-up" one).

This means that for some short-term planning we are using the "future-as-an-extrapolation-of-the-present" model, for some medium-term work a "single alternative future" model, and for the remainder, including long-term planning, an "alternative futures" model. The last model is much more comprehensive than the other two in that an attempt is made to relate a variety of non-educational factors in the future to educational policy-making and planning in the present. Moreover, it facilitates reasoning from the future to the present, rather than just reasoning from the past to the future. This, in turn, makes it possible to attempt to shape policy, not in order to accommodate ourselves to a future continuous with the past, but to bring about a future different from the past. It also promotes a consideration of alternative goals for education and alternative policies for achieving them.

Our research program managed by AHRRC tends to reflect this mixed model. Forecasts with respect to demographic and economic factors such as population, sources of income, and manpower requirements are largely extrapolations of current trends. The position papers by scholar/experts on various educational elements like aims, curriculum, teaching/learning, administration, etc. attempt to project contemporary thought into the future and usually offer a single alternative. Forecasts in the social realm are relatively less present bound. Through the use of the Delphi method, another research group is systematically assembling expert judgements about the likelihood of specific occurrences and changes during the last third of the Twentieth Century in social goals and values, family life and child rearing, political life, leisure and recreation, intercultural relations, and the needs of individuals. We shall then attempt to tease out some of the probable implications of these forecasts for education in the years ahead.

Generally, the efforts of the Commission on Educational Planning at what is sometimes referred to as futures-history must be viewed as being very much at the stages of early conceptualization and pre-planning. Refinement and translation into detailed plans of action and implementation will await the work of others.

Thus, the problem of public expectation and acceptance is an important and complex one. For a unique characteristic of individuals is that each of us tends to create his own scenarios of the future and to be somewhat prejudiced against those conceived by others. Hence, public acceptance of proposals that anticipate changes not generally understood is one of the potential hazards of the ultimate success of our report. Public involvement in the development of the report is viewed as one means of minimizing this hazard. In addition to the usual opportunities to make submissions and to participate in public hearings, we hope to bring the public and the policy-makers along with us through a number of other participatory activities, including eleven one-day conferences during the past two months in various parts of the province for the consideration of each of the position papers which we commissioned; a futures congress early in December in which about 300 representative Albertans will be encouraged to think with us about the educational implications of our futures forecasts and their effect upon public policy; and three seminars early next spring for an examination of the interim proposals from the task forces on the N-12 system, post-secondary education, and lifelong education. In addition, it is anticipated that deliberate steps will be taken to ensure that the report of the Commission will be the subject of province-wide study and debate as a prelude to action by those affected by it.

Nonetheless, the problem of expectations, acceptance, and understanding continues to plague us. Witness the cynicism of the following editorial which appeared in the *Gateway*, the student newspaper at the University of Alberta, about a week after we held a special hearing for post-secondary students:

A COMMISSION A DAY . . .

> *Anyone who expects the Worth Commission to move earth and sky and the Alberta educational system is due to be sadly disappointed.*
>
> *"Join with us to illuminate Alberta's educational policy for the last third of the century" is the expansive invitation issued by the Commission on Educational Planning. But don't take it too seriously.*
>
> *First, let's look at the commission itself. Consisting of a representative cross-section of the socio-economic elite of the province (with the exception of token hippie/radical Allan Stein), the commission can hardly be expected to indulge in an unbiased, "objective" view of education in the context of the social structure of the province. These people already have a vested interest in the present*

political-economic organization of Albertan society. They can hardly be expected to seriously consider the "problems" of education today in the light of the inherent contradictions of corporate capitalism.

Next, let's look at what's going on in the government while the commission is working on its final report. AAS President Jim Draginda concluded his presentation at last week's hearing with: "I have a feeling that the government has already decided what is going to happen to education in this province in the next twenty years. The government has set up a committee of one to bring back this recommendation and 'rubber stamp' it."

Being inherently suspicious of the government, we wouldn't be surprised if this were the case.

Unfortunately the scenario will probably go something like this: sometime in 1972 the commission unwraps its final report, a very progressive, liberal document that shocks the Alberta Teachers' Association, bores students and is totally ignored by the government. The Minister of Education will extend his pious gratitude and make Dr. Worth president of the new university and continue with the policies that have evolved from the backrooms of the Department of Education while the Worth Commission was busy taking all the pressure for educational change off government. The net result of the commission's efforts will be absolutely nil.

It is possible that the commission will rise above its bourgeois background. It's even possible that in 1972 Alberta will be the proud possessor of a different government. But it is not even faintly plausible to expect an overnight revolution in education to result from the commission's efforts, much less any notable change for the better.

After all, a commission a day keeps the revolution away.

You have been reminded many times at this conference that the planning process must be continuous. You have been told that the complexity of society and the rapidity of change make it imperative that there be permanent structures for planning. And, you have been urged to make planning more scientific and/or rational. The "once in a decade" approach which has been typical of Royal Commission procedures falls short of these requirements. For this reason, CEP is looking at the problem of relatively permanent structures and processes for continuing planning following the termination of its task. In fact, this is why we are called a Commission on Educational Planning.

We are examining structures for planning; their interrelationships at the institutional, regional, provincial, and extra-provincial levels; the processes for planning by individuals and groups at these levels; and, finally, the emerging technology for planning -- program budgeting, cost benefit-cost effectiveness analysis, simulation, and the like, which you have been examining during the past two days. Hopefully, our efforts will yield at least some partial solutions to the fundamental problem of policy planning - the potential conflict between the central technocratic basis necessary for effective system planning to ensure comprehensiveness as well as specialization and differentiation, and the creative process of change and improvement which requires the active involvement of individuals, groups, communities, institutions, and sub-systems.

If this part of our job is well done, the greater is the likelihood that lasting benefits will accrue from our work.

A Concluding Observation

By way of conclusion, let me pick up the basic question underlying our examination of structures and processes for educational planning. Can effective, integrated, long-term planning be conducted through existing institutions and procedures?

Not likely.

Why?

Because there is little evidence that educators, businessmen, politicians, labor leaders, students, or citizens generally now think in terms of integrated long-term planning. They all appear to be pre-occupied with short term reactions to accommodate change and an immediate time perspective for the satisfaction of needs. Contrary to the myth, few business corporations engage in futuristic planning. It is not uncommon for boards of directors to warn their top executives not to waste their valuable decision-making time on long-range considerations. And many politicians (with, of course, some notable exceptions) act in accordance with the maxim that a successful politician is one who gives the illusion of being out in front of the crowd while following closely behind. In their defense, however, it should be pointed out, that the businessman must make money every year or he goes out of business, and that the politician must be a hero every year or he is not re-elected. That is the way we have established our two basic institutions of business and government. It keeps them responsive to our democratic "votes" in the market-place and in the ballot box.

Meanwhile, the private citizen as an individual is even more highly confined in his time perspective. He is comforted in this by homely advice "to live each day to its fullest and let tomorrow take care of itself", and slogans like "don't borrow trouble", or "eat, drink, and be merry, for tomorrow we may die".

Labor leaders and educators, particularly university personnel, may create a stir from time to time about the future and the need for change, but most of them would rather talk than act. The resulting noise pollution usually stifles any attempts at genuine reform which might directly affect them. Like many other people, they want to get to the Promised Land without going through the wilderness.

Our present sense of direction and pace in planning appears to be inadequate to meet foreseeable demands in these fast-moving times. Passions have stirred needs that are urgent. Expectations are high. And it is becoming clear that, while we may overestimate change in the short-range (5 to 10 years), invariably we have underestimated it in the long-range (20 to 50 years and beyond).

If this view is valid, how then are we going to plan and deliver on time the kinds of educational services required in the last third of the Twentieth Century?

Attempting a partial response to the future through existing institutions and procedures is clearly one way we must begin. It is also clear that there will be more than enough for everyone to do. Thus, the real challenge is to provide new structures and new processes, as well as help, encouragement, and freedom for all to do the best they can. Any shortcomings which may arise will be vastly out-weighed by the potential which is thereby released. This is the way mankind has progressed in the past, and this is the most promising road for educational planning in the future.

6

EDUCATION PLANNING AT THE UNIVERSITY LEVEL

by

A. M. Kristjanson
Alberta Universities Commission

In the past few years higher education in Canada has moved very clearly into the public domain. It makes increasing demands on public finance. It is related to manpower demands in that it controls the supply of teachers, doctors, lawyers, engineers, etc., to changes in the occupational structure, and to all manner of public business. At the present time, higher education is existing in a revolutionary context, and it will increasingly do so.

Until very recently, planning in higher education was generally a haphazard, short-term, uncoordinated, decentralized process. Because of the stability of the rate of enrolment and cost increases, it was a rather undemanding and simple task. In those simpler days, universities did not usually have separate planning units, although a planning process was vaguely diffused throughout the enterprise.

Today, there are no complex tasks or projects that we any longer dare trust to be resolved as "the unplanned outcome of a fit of absence of mind". The issue is not one of whether or not to plan, but rather of how effective the planning is and, in these times of increasing concern with the rights of those affected by planning, who plans, for whom, and by what procedures?

Most universities, in the face of the markedly increased rate of change (rapidly increasing enrolments, changes in program patterns and a rapid escalation of costs), have established in their structures more formal provision for planning than they had in the past. This may take various forms -- a President's planning committee, a Board of Governor's committee or, as at the Alberta Universities, Committees of the General Faculties Council (translate as Academic Senates in most other provinces). Coordination and cooperation of programming between universities, although greater than in the past, is still neither extensive nor regular.

In the United States, in addition to the processes observed in Canada (that is, a great deal of uncoordinated planning at various levels throughout the university -- by individuals, by departments, by faculties) there has been established in nearly every state of the Union a coordinating or coordinating-governing agency somewhat akin in nature and responsibility to the Alberta Universities Commission. Almost all of these state commissions or boards have been charged by their state legislatures with producing "master plans" for the institutions for which they are responsible. This apparently very rational and sensible approach to helping put higher education on a sound basis has been rendered largely impotent by their failure to match the larger problems of state-wide

planning with any increase in sophistication of approach. In addition, there seems to be a consistent tendency to institutionalize the *status quo* and to accept conventional wisdom without questioning the underlying premises. L. B. Mayhew has spoken to this in the following words:

> *A master plan should establish broad guidelines acceptable to all institutions and should clearly answer the question, "Shall there be some differentiation of function among institutions of higher education in the provinces?"*
>
> *State master planning is a recent and relatively primitive phenomenon. It is clearly in the ascendency, apparently because U.S. higher education and its costs have grown so rapidly. The consensus is that planning and state systems are useful. And they probably are.*
>
> *It is disturbing, however, to find that most completed state master plan recommendations seem to derive more from accepted public policy or opinion than from the facts and conditions of a single state or region. It seems almost possible to draft a profile of any state in the Union from census statistics just by determining the size of an age group, the centers of population and the ranking of the state with respect to a number of factors. A plan can be produced by discussing these and applying accepted principles. The elements of these principles may be briefly summarized:*
>
> ** . . . universal education should extend upward to at least the fourteenth grade.*
>
> ** . . . we need more technologically sophisticated people to conduct a complex urban and technological society . . .. Institutions of higher education are assumed to be the best vehicles for developing the necessary competencies.*
>
> ** The junior or community college is an effective and relatively efficient way of providing higher education for students who cannot afford to live away from home, want only two years of college, or who need remedial work before attending a four-year institution . . . .*
>
> ** In spite of the American character's strong egalitarian vein, it is generally assumed that there is social stratification based upon ability to handle complex matters . . . . While states differ in the rigidity of this stratification, the concept is explicit or implicit in each master plan.*

> * *A strong relationship is assumed to exist between university research and general social and economic well being . . . .*
>
> * *Once the premise is established that higher education is complex and costly, it is invariably argued that some form of coordination is essential.*
>
> * *On the assumption that people living in a complex society may change careers several times during their lifetime, some more elaborate provision is made for adult and continuing education.*
>
> * *More explicit attention should be paid to the recruitment and training of college teachers.*
>
> *Unfortunately, the validity of the assumptions is rarely questioned. Actually, each point can be seriously challenged . . . . . .*
>
> *But such challenges do not imply that the usual master plan recommendations are bad or inappropriate. Current opinion frequently indicates what people want. But plans which purport to be rational approaches to a serious problem ought to at least begin with rational assumptions.*[1]

Thinking About Planning

For the purpose of discussion or thinking about "educational planning" (this can apply both to the task or project planned and the planning process) we can consider our concerns and analyses under three general headings: (1) philosophical; (2) political; (3) technological. This is of course not the only possible categorization, and obviously many aspects of planning do not fall neatly under any one label, but may be found in two or in all three. Briefly, then, I will outline some of the aspects of higher education planning under each of these topics.

Philosophical (general principles, premises, purposes, objectives, etc.). In a complex, pluralistic society such as ours it seems almost impossible to get any consensus on the objectives of higher education. In answer to the question, "what are universities for?", we get answers varying from, "to act as agents of social change" through "to train competently the agents who run our corporate society".

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[1]Long Range Planning for Higher Education, pages 21-26. Studies in the Future of Higher Education. Report No. 3.

We do not agree on the basis for provided facilities, services, and programs.

Should we pay most attention to social demand? (the sum of individual demands by students and their parents). Even if we were to do so, there are subsidiary problems. How do we consider our students -- as clients, customers, wards? How do we determine these social demands? And so on.

Or should we pay most attention to manpower needs? They are hard to predict for the future. In addition, there is confusion in distinguishing between the present market place demand for employees and the true social need for people with certain skills (e.g., a chemist with useful acquired skills who could work at cleaning up our polluted atmosphere -- I'm not as optimistic as Senator Cameron on how slight a need this is -- may not be able to find a job in our present job-market).

Should cost-benefit considerations be basic? Planning on this basis, designed to optimize socio-economic returns for a given expenditure, often overemphasizes the more easily quantifiable economic returns. Our analyses may not properly distinguish between the economic value of education to society compared to its value to the individual. If you believe what is stated in such books as *Higher Education: The Great Training Robbery*, you would conclude that higher education was essentially a means to allocate status and good jobs to the more educated without necessarily increasing their true productivity.

Nor do we have general agreement on the proportion of our wealth that should be allocated to higher education. We have no general agreement on the basic nature of man or perhaps even whether the term has any meaning. We do not know much about intelligence or teaching or learning or the best size of institutions or many important concepts.

Political: this includes participation and procedures, the recognition and assignment of authority, responsibility, power and accountability, both in planning and in the institutions planned.

The very long and strong tradition of the complete autonomy of universities inhibits any easy cooperation between universities, or coordination and control of universities by non-university agencies. Many institutions believe, perhaps with reason, that planning their future is a cover for greater control of their destiny by government of the day. The delineation of the proper centres of authority, responsibility, and accountability, as well as the procedures for exercising these functions, has not been adequately done.

The interaction between planners, policy-makers, decision-makers, and implementers must be made clearer. Should these functions be carried on by separate groups, each with its expertise, with some satisfactory communication between groups -- or, should one group of people carry out all these functions?

One problem in the funding of higher education stems from the use of provincial funds to support institutions that serve both a national and international purpose. How to obtain reasonable equity in the support of higher education by different provinces has become a problem, now that the total costs of higher education are so great and individual students pay so little of the cost.

Technological: We lack adequate knowledge of the "outputs" of our universities. Generally we have very little information, even about what our graduates do after leaving university.

Our knowledge of the cost-benefits of the use of technology in the teaching-learning and service operations of our universities is very inadequate.

The design and use of our information systems for decision making is generally incomplete.

Most of the new techniques for analysis of the future are not widely used in higher education.

Higher education has been very backward in developing evaluation procedures to guide its operation, etc.

Do We Need to Plan?

The traditional order of march in "educational planning," with suitable iteration, includes the following elements in the order given. For each of these levels or elements it is assumed that planners must make rather explicit decisions about:

* philosophy
* objectives
* programs
* organization (presumably one might argue about whether an organization is staffed or a staff is organized)
* staffing
* facilities
* financing

In spite of the sweet reasonableness and appealing common sense of the above approach, it may all be inappropriate and pointless. With the incredible pace of change and the increasing concern that our primary task is survival, perhaps the primary task of higher education is to prepare people to cope with the future. Perhaps we can simply state that the task of higher education is to increase markedly the ratio of "swingers" to "clingers" in our society.[2]

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[2] These definitions came from a sermon delivered at the First parish in Bedford, Mass., September 13, 1970 by Rev. D.R. Weissbard.

We may define swingers as people who are aware of their feelings, who are emotionally free-flowing. Swingers do not require a fixed, structural world. They are able to let go. They experience life as flowing.

The clinger, on the other hand, is one who hangs on to the past. He is emotionally bound. He experiences himself as separated from nature, from objects, and from events. The clinger needs a structured, predictable, and definite world of low risks in which to operate. He has a low tolerance of the new and bizarre, a low tolerance of ambiguity, and a very low tolerance of uncertainty. The clinger greatly prefers the past to the present.

Conclusion

Universities must systematically obtain much better information about themselves. When attacks are made on their traditional autonomy, the only acceptable defense is the clear explanation of why any particular loss of autonomy makes them less competent as universities in carrying out their proper function.

Perhaps the greatest problem is the defining of their proper function. Too often institutions of higher education seem to be in the position of the man racing along at eighty miles per hour, hopelessly lost but making such good time he hates to stop to find out where he is and what is the correct direction to take.

Above all, the planners of higher education must always be aware of and live with the concept that "tomorrow is now".

7

EDUCATION PLANNING IN THE METROPOLITAN TORONTO SCHOOL BOARD

by

W. J. McCordic
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As it stands at the threshold of the 70's, mankind faces staggering problems of almost unbelievable complexity. Yet, despite the problems -- problems so awesome as to threaten our way of life, perhaps even our very existence -- there is abroad a spirit of resolution, a spirit of commitment, if you will, to make one gigantic effort to stretch the capacities of the human mind with the same enthusiasm that we, a generation ago, stretched the capacities of the machine. If, by such a super human effort, we can resolve some of the present problems of our day, we may yet build a world of peace, a world within which man may exploit his skills in creation, exploration, research, and discovery.

If such an effort is made, its focal point will be the institutions of learning throughout this and all lands. So strategic will the position of education be in this process that it will be necessary for education to become the overriding prime occupation of society.

Our general concern at this conference is the shaping and planning of a school program with this kind of high priority. Specifically I would like to relate to you some of the things we are doing in Metropolitan Toronto to accomplish these ends in an urban setting.

To understand what we are about, one needs to be aware of the premises on which we are building our priorities. We believe, for instance, that the focal point of learning and growth is the school and the community in which it is set. We believe that each school, each community, is different. We believe that each community has resources as yet untapped that need to be committed to this process.

We believe that the principal and staff in each school must assume final responsibility for marshalling the total resources of the community toward the intellectual, emotional, and social growth of the young people of the community. We believe that the administrative machinery (and who can avoid such a structure in a densely populated city?) has only one function: to make it possible for each local school staff to achieve the ultimate in professional accomplishment. The emphasis in such a plan should be on local initiative, community involvement, extensive local decision-making and on-the-spot evaluation.

In Toronto, we are in the 17th year of an experiment in cooperative planning. It is an approach which one writer has described in these words: "the emphasis is not so much on bigness and supergovernment as it is on the warmer and more attractive concept of federation". Let me acknowledge, however, that thus far we have made but few tentative, encouraging steps in this direction. Much of what I intend to describe to you lies in the future and is part of a master plan which we are in the process of evolving

-- a plan within which area-wide decisions are kept to a minimum and are consistently fashioned in such a way that they support the concept of local planning at the community school level. To highlight the chief characteristics both of our present educational arrangements and our long term model, I would like to turn the spotlight to the Metro Toronto plan in four distinct areas: Administrative System, Provision of Facilities, Development of a Financial Plan, and Arrangements for Program Development.

Metropolitan Toronto is a federation of six boroughs and has a total population of two million. It also has six school systems. They range in size from East York with a population of 100,000 to the City of Toronto with approximately 750,000. The remaining four lie within these extremes, although ultimately two of the outer suburbs, Scarborough and North York, will have larger populations than the City of Toronto.

Every three years, the voters of the school districts elect trustees to their local Boards of Education. Each Board of Education is charged with the planning for, and the day-to-day administration of, the schools within its district. Yet, the six school systems are financed from one common tax base. In the total metropolitan area, 25 per cent of the revenues flow from the Province, 75 per cent from a tax on real estate.

For overall planning purposes, and for both capital and current budget purposes, the six school systems are joined into one Metro-wide federation called The Metropolitan Toronto School Board. This is the Board which I serve, and it is responsible for coordinating the budget process. It is not, however, a super-board. It is composed of members of the local boards whose first responsibility is to the ratepayers who elected them and whose first loyalty is to the local board of which they are members. Each board sends its Chairman, the larger boards sending one or more additional representatives in proportion to the population. For secondary school purposes, three appointed members-at-large represent those Roman Catholic families who support the Separate Schools, and these are the only members of The Metropolitan Toronto School Board not locally oriented and elected. I repeat, then, that the very composition of the Metropolitan Toronto School Board confirms the fact that it is not a separate agency, but merely a place where people come together to solve common problems.

This spirit of cooperation is borne out in staff activity. There are at present about 30 committees representative of the six areas concerning themselves with the development of guidelines on salaries, quality of buildings, program provisions for inner-city schools, junior kindergartens, and so the list goes on. At the masthead of this committee structure is the Advisory Council of Directors which meets weekly and consists of the senior officer of each of the six boards and me. They, not the Metro staff, are the executive and staff arm of the Metro School Board.

Thus, at both the staff and political level, we undertake to allocate the available resources in such a way that Boards are free to develop schools and programs uniquely suited to each area.

Let us look first at how these arrangements work out in relation to the provision of school accommodation. The process of developing a capital budget begins where we think it should begin, at the local school level. Each principal is responsible for an annual survey of his attendance area. This responsibility is so important to his understanding of his community that we believe the job should not be delegated, although his staff can, and do, do some of the field-work. When principals were first requested to undertake this mundane assignment, there was an obvious lack of enthusiasm. In North York for instance, the principals might never have embarked upon it had not their Director, the late Dr. Minkler, made the exercise mandatory. Now there is no objection, because the knowledge of the community so gained has proved invaluable to principals in terms of the day-to-day management of their schools.

Each principal is provided with a detailed map of his attendance area showing individual house lots and apartment sites. By survey under his personal direction a circle is drawn for each housing unit under construction. This circle is filled in when the housing unit is completed and color coded to identify it as detached, semi-detached, duplex, or row housing. Comparable symbols are used to show the exact number of suites in apartment buildings. School enrolment is them matched against the various types of housing in the community. When collated, the data generated by these "grass roots" surveys in 500 different schools provides an information base relative to pupil ratios that has raised the accuracy of our enrolment predictions to a very acceptable level.

At area board headquarters, professional planning persons support the principals by maintaining contacts with sub-dividers and other municipal authorities involved in the physical development of the borough. In each administration centre, there are two maps, one on which proposed subdivision plans are shown and another on which all registered plans are marked. A card index file with the details of each sub-division is close at hand. All this data makes it possible for each board to assess its needs for land acquisition and school buildings well in advance of actual development.

As has happened in most jurisdictions, our involvement invites the question, "should school boards control development?" We believe not, but we insist that the school board become involved early enough in the planning process that it may influence the process and help make it as orderly as possible.

At this moment in Toronto we are receiving each board's capital budget, containing proposals for projects to be launched in 1971. The local staffs and the Metro staff will confer over the next few weeks, relating the six proposals to each other to the end that priorities can be established. By this process a hard-core budget composed of top

priority projects which must proceed will be developed. Then begins the assessment of those projects which might be regarded as marginal, projects about which the trustees will make a final judgement. In a serious, hard-nosed, close-to-the-vest session of trustees representative of the six areas, the capital budget is shaped for the entire Metro area.

In the first 12 years of Metro we bought land and built schools to a value of half a billion dollars. By and large these were high quality masonry buildings of conventional design. In the past four years we have become concerned that these buildings will be too inflexible to serve the emerging patterns of education and may even inhibit essential reform.

To the end that schools should be more flexible, we are now completing a major study of educational facilities commonly referred to as "SEF". A highly qualified *ad hoc* staff has just concluded the dual task of identifying the educational requirements of the schools of the future, and then planning these schools on a modular basis, to the end that they may be literally mass produced in the factory. Ten schools using the building system thus developed have just opened and another twelve will open next September. This is an exciting, promising project. I refer to it particularly because it illustrates the type of broad planning that can be done by an area as large as ours.

The capital budget arrangements which I have just described were part of the first stage in the development of our Metro system, covering the period 1953 to 1966. On January 1st, 1967, the Metro Board became responsible as well for combining the current budgets of the six local boards into one composite current budget. While infinitely more complex, the goals and the basic approach in this second stage have been substantially the same as the first, though more far-reaching. One uniform tax for the basic educational services is levied across the Metropolitan area. In order to check any overriding authority at the Metro level that might inhibit local initiative, however, the charter for the second stage provided that each local district would be free to supplement its revenues by a local levy amounting to about five per cent of its total budget.

The budget process begins at the local level, hopefully reflecting the individual needs of each community school. Boards vary in the degree to which they involve principals and local staffs in the budget process, but their involvement is increasing.

Once approved by their own boards, local budgets are submitted to Metro where they are reviewed and compared in detail. Items which seem to be beyond a basic standard or seem to reflect too accelerated an expansion of programs are identified as items which the local boards might be expected to support themselves from their local levy. The Metro recommendations are discussed with local staff, with local boards and after an extensive exchange of views over a period of two or three months, the final judgements are made at a public meeting of the Metro School Board.

The fact that three of our six boards have never imposed a local levy would seem to support the fact that the combined judgements at Metro have been fairly acceptable.

Our experience in the current budget area would indicate that even after four years, we have a long way to go. Basic to the process has been the development of a uniform code of accounts so that we could compare apples to apples instead of apples to antelopes. Currently we are engaged in the development of a personnel file which will tabulate our human resources, making it possible to obtain, on a school-to-school and board-to-board basis, an indication of what people are doing. This, in turn, can be translated into salary costs.

It would take too long to describe the process by which each account is reconciled in the composite budget. By way of illustration, let me describe how we handle the largest of the accounts, "Day School Instructional".

For budget purposes the control factors in the "Day School Instructional" account are the salary schedule and the pupil-teacher ratio. Each of these control factors is established in advance by the Metro Board.

Salary schedules are negotiated by a committee of representative reachers and a committee composed of the Metro Chairman and the chairmen of the six boards. Deeply involved in the process in support of their chairmen are the Directors of Education. Although our charter does not require us to conduct Metro-wide negotiations, the fact that the six boards have been operating on a common tax base since 1967 precludes any real difference in salary levels. However, while the responsibility of the Metro Board in coordinating the negotiating process may seem logical, teachers had traditionally negotiated with their own board and wished to continue to do so. Therefore, in 1967 and 1968 we struggled along, with each board negotiating with its own teachers, all attempting to reach an identical salary settlement. This cumbersome process led to many cries of bad faith, and finally in 1969 the secondary school teachers approached the School Board with the proposal that negotiations be on a Metro-wide basis.

Obviously this change has not solved the problem of teacher militancy, and it has tended to increase rather than to diminish the intensity of teacher/board relations. Nevertheless the process has worked and the principle is now accepted that teachers with equal qualifications, experience, and responsibility should receive equal compensation in all six areas.

Currently, the pupil-teacher ratio is the device we are using to achieve an equitable allocation of our professional resources, and the criterion for determining the number of professional people each board may hire within the composite current budget. It is a formula which has built into it at the elementary school level provision for special education classes, inner-city schools, English language instruction for New Canadians, small schools, and a number of other items. At the secondary school level, it differentiates the staff requirements for various types of courses, academic, commercial, technical, special, vocational for slow learning pupils, and similar factors.

For three years the formula was worked out by a committee of representative senior officials, one from each district, chaired by a Metro official. The possibility of teacher involvement in this process had been comtemplated, but as happens so frequently, it was not put into practice until the teachers demanded it.

The process by which teachers did become involved was difficult and trying. Early this year, the teachers demanded the right to ratify or reject the pupil-teacher ratio approved by the School Board. The Board, in turn, refused to surrender its public responsibility to make the final decision. During the resulting impasse the teachers imposed a pink letter, cutting off the supply of applicants to teaching positions in Metro. The balance of the boards in Ontario replied by imposing a province-wide ban on hiring. This moratorium extended beyond the statutory date of resignation, May 31st, and almost had the effect of closing our secondary schools. We survived this test, however, and the Pupil-Teacher Ratio Committee now has equal representation from teachers. Together, teachers and officials on the committee have begun their task of generating a formula for 1971-72, and the committee has had its fourth meeting.

At best, however, we regard the pupil-teacher ratio formula as a crude tool and fear the long range rigidities its continued use may generate. We look to a new method for achieving the same result, a method which would give principals greater freedom in the staffing of their schools. We call it the Units of Professional Strength concept. It isn't a new idea, although the sophisticated end-product we have in mind to our knowledge has no model. In simple terms, we think it might be possible to give each member of the instructional team a numerical weighting, i.e., a principal 2.0, a vice-principal 1.75, the head of a department 1.5, a regular teacher 1.0, a lay assistant .75, a secretary .6. It might even be possible to build into the scheme provision for a merit plan by providing that a teacher of merit would be worth 1.2. Over a period of years we would hope to refine this numerical weighting and test it in a wide variety of school situations.

Instead of a pupil-teacher ratio, therefore, we look to the day when we could develop for each of the school districts the units of professional strength to which it is entitled by reason of its school population. How a school district invests its units and combines the available professional resources to meet its needs would then be its own responsibility. Ideally this concept would be extended to the school level, each principal being invited to develop his plans for staffing within the units of professional strength to which he is entitled.

This specific approach to one account classification illustrates the general approach we are attempting to take, establishing guidelines by which each board gets its fair share, and yet remains free to make its own plans. This year major studies are underway extending this approach to Plant Maintenance, Plant Operations, Data Processing, Supplies and Equipment, and Transportation.

The final and most complex area of our joint enterprise that I would like to describe is program development. Given what is essentially fiscal amalgamation, we are not yet certain that we can resist the temptation among the six boards to imitate each other to the point that their identity, which we are striving so hard to maintain, gets lost. We are not nearly as sure of our ground here as we are in the more practical concerns which I have already described, but we are still determined to retain our individuality.

To illustrate our efforts to develop a master plan with enough flexibility to allow area boards to vary their approach and emphasis, let us look at outdoor science programs. Prior to the total consolidation of our current financial operations four years ago, each board was approaching the outdoor science program in its own way. In surplus classrooms on Toronto Island, the City of Toronto established a unit to which Grade Six children are taken for a week's residential experience. The area lends itself to a wide range of science activities and a model farm is provided on the school site. The City of Toronto is currently building a second similar unit on 200 acres of land north of the city. Two of the other boards have cooperated in developing a private children's summer camp for year-round use, and have built their plans around this approach. The remaining three use lands and buildings administered by the Regional Conservation Authority as a base for their program.

Currently, a Metro Committee is doing an inventory of all available resources and assessing the approaches taken by the six boards, while our Research Department is involved in an analysis of pupil, teacher, and administrator attitudes toward outdoor education. There is evidence that the findings will support the continuation of the present varied approach to the subject. Indeed, from the preliminary report which I have read, the recommendations will lead us toward ever greater diversification of our outdoor science program, and boards will have increased opportunity to extend the various types of meaningful science experiences available to their students.

IV

CONTEMPORARY APPROACHES TO PLANNING IN EDUCATION

In a fundamental sense the problem of improving policy making and planning in education is one of developing approaches to solving problems which are intended to increase the insights and augment the practiced judgement of experienced politicians, planners, and administrators. The needs to develop educational systems which are responsive to shifts in social conditions, to weigh competing priorities, and to control expenditures on education all point to the need to devise effective procedures for forecasting, for resource allocation, and for monitoring the performance of the educational system on a continuing basis.

8

PLANNED CHANGE IN EDUCATION, ELEMENTS, DYNAMICS AND VALUES

by

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Change is the normal state of the universe. One of our problems is to recognize change, a second is to consider what is likely to happen, and a third is to decide what, if anything, we should do about it. If we are on the side of those favoring planned change, we must seriously consider several questions: What resources can we marshall to solve problems related to the continuing and advancing of our civilization? Which concepts, cherished beliefs, and habits should we hold and which should we shed? What priorities should we establish? All of this activity must go on in a world which alters as we walk in it.

We have added the idea of progress to the ancient idea of change. More recently we have added newness, a concept aimed at affecting the scale and scope of change and of replacing ideas of slow growth and rearrangement with new techniques and devices. We have reduced the world in size by making possible almost instantaneous world-wide communication. We have begun to look at our problems as global. Futurologists face a new reality in which we must make our peace with Nature, limit the numbers of people as our world is finite, while permitting industry to advance only when the side-effects of new products or their manufacture are less damaging than the benefits received, and do not disturb too greatly the ecological balance.

What is new is the determination to assess the present, to forecast the future assuming the continuation of present trends and then to set fairly specific desirable goals and specify the means of reaching them according to schedule. At present most of us are busily occupied in assessing local problems, making minor adjustments or making forecasts. Time must be found to consider the broader picture and to see how all these efforts contribute to reaching accepted objectives. Strategies to be used in affecting public opinion and government policy and keeping citizens informed are an important part of this work.

Change Strategies

The roots for an approach adopting planned change are to be found in the development of a variety of practices which could be subsumed under social engineering and which are aimed at the deliberate application of knowledge as a tool or instrument directed towards altering present patterns of behavior and current practices. In education, for example, certain of the thrusts designed to effect improvement come from the new technologies of communication and computational devices made possible by new applications of electronics audio-visual devices: television, computers, and computer-assisted instruction, all looming large in our thinking about information techniques and technologies.

In addition to problems related to improving technological equipment, we are encountering such road blocks as resistance to change, anxieties, and threats to morale. In undertaking innovation we become change agents, too often operating with little appreciation of the available strategies by advertisers and politicians for introducing innovations successfully.

One category of strategies for effecting social change can be grouped as *empirical-rational*. They postulate that new findings or recommended changes will be accepted because of self-interest. Many researchers assume that it is only necessary to discover something new for it to be adopted and are badly disappointed to find that after having completed a project and discovered a new successful procedure, their recommendations fall on deaf ears. Beaten paths to doors for better mousetraps are generally made by the feet of interested customers.

A second category, *normative-re-educative*, includes those approaches whose appeal depends on patterns of action and practices supported by sociocultural norms and commitments, and where change and acceptance will occur as people change their normative orientation, feelings, and reactions, knowledge, values, and interpersonal relationships.

The third category depends on applications of power and compliance to those higher in the administrative hierarchy. This hardly needs amplification for the education setting, which is not always operated entirely democratically. School law has been effective in bringing about changes, but the degree of success has varied and could drop in the present social situation.

Approaches to Change

It is one thing to plan, but quite another to ensure that plans will be followed and established goals reached. In considering man's prerogative to change history according to formulated plans, thinking generally falls into one of three categories: non-intervention, planned change through participatory democracy, persuasion, appeal to reason, and radical intervention.

In the non-intervention group are those who believe in the eminence of natural law to maintain a global if not universal equilibrium and determine the course of events. This group includes members of religious sects, a few economists favoring the law of supply and demand and other laws of economics. Perhaps we should include many who are so busy with their day-to-day activities that they have little concern for what they feel is the responsibility of the powers that be or nature.

The group favoring radical intervention includes persons who normally adopt an extreme position such as a Marxian analysis of the situation, and accept the hypothesis of an inevitable class struggle which Marx introduced as an antidote to laissez-faire and capitalism or as a decision to use compulsion to effect five-year or other plans for the good of the state, as determined by a militant majority. Whether or not modern anarachists would fall in this group is a moot question.

Assessment and Evaluation

Where assessment refers to the testing of individuals and evaluation with the effectiveness of programs, the situation is dynamic. Most experts in testing and measurement have made it clear that the most reliable tests fail to assess progress towards many of the behavioral objectives which teaching personnel consider to be the goals of instruction most deserving of priority. There is some question as to whether objective tests can measure all of these characteristics, and there is some agreement that we shall have to resort to controlled subjective assessment procedures as a supplement to subject matter tests.

Not only are test specialists concerned about the inappropriate use of tests but there is now greater sensitivity by parents, ethnic groups, and others as to the effect of testing on testers and the inviolability of information covering an individual. In the United States this has resulted in political pressures against testing and questions of the legality of making personal information available to employees and others, with implications for test usage and the keeping of personal records. With advances in communication devices and added concern for minorities and personal freedom, this is understandable. The long-run effect on research projects and planning is still conjecture.

The situation concerning evaluation of programs is equally unclear. For many years nothing was done except when a team from a university undertook a survey of a school unit, or an experiment compared two programs. More recently, some engineers have suggested the use of the systems approach, not only to check effectiveness but to remove bottlenecks or waste efforts. Cost-effectiveness studies are being used, but they provide only economic data. It would seem that when a new program is introduced there is need for provision for assessing it. This will probably include a variety of tests directed to assess the program and follow-up studies directed at the product to see how beneficial the course has been.

Economic Tools

Because enrolments are rising rapidly, especially at the post-secondary level, with costs more than paralleling such increases, no suggestion for growth or expansion of facilities is complete without including budgeting and other financial consideration. In this section our interest is with a variety of procedures used to assess various situations, to aid in decision-taking and the selection of the best course of action. At the same time we hasten to add that the acceptance of one of these approaches often influences the decision-making process and could result in courses of action based essentially on economic factors, which may or may not be the crucial considerations in the issue at hand. The procedures to be noted are legitimate tools which can make contributions in both planning and administration. Our problems are essentially those of determining when and how they should be used, and of improving them.

state, as determined by a militant majority. Whether or not modern anarchists would fall in this group is a moot question.

The third group, to which most of us belong, is composed of those who favor deliberate collaborative efforts to improve both society and education. By selecting a feasible middle-of-the-road course, we hope year by year to advance towards providing appropriate knowledge of human affairs to assure intelligent successful action related to man and his world. The goals may be the same as those of radical intervention, but the means differ since participatory democracy provides for persuasion with recourse to authoritarian action only when approved by a majority of the citizens. The formulation of realistic goals and the receiving of general acceptance here provide a real challenge.

For effective action there is need for greater understanding of methods being developed and their potential for altering social processes, both the main consequences and probable side-effects, their ethical and pragmatic attributes, and their limitations. It would be premature to attempt to do more than set out for inspection a few of the current alternative recourses related to possibilities for change.

One element common to all approaches to planned change is the conscious utilization and application of knowledge as an instrument or tool to modify action patterns and institute new practices. The chief hope for systematic advance seems to be through cooperative action on the part of all. Neither celibacy of intellect, as exhibited by a few narrow specialists, nor the short-sighted actions of others under the cloak of being practical can be permitted as they are irresponsible and can contribute nothing lasting. There is need for involvement, direction, ballast, and an accepted goal-oriented plan. In promoting greater use of planned change, science will probably be expected to produce new knowledge, new solutions, new methods, and new approaches. One problem will be that of converting selected systematic and appropriate knowledge into appropriate programs. Next, we must decide how these programs can be administered, assess them, and modify or expand them as necessary.

The voice of dissatisfied youth suggests the need for a hard look at our way of life, and, with youth constituting more than half of our population, we must recruit their efforts. To accomplish this we must have something to offer that we accept and can justify. Teachers, parents and many educators also have become vocal in favor of change, but too often this takes the form of criticism, complaints, and overemphasis on substituting some one innovation or some change touted as a panacea for all ills. The climate was probably never better for the introduction of change. There is need therefore for concerted action and a cross-disciplinary team approach to set goals, prepare materials, conduct activities, and assess them for advance in a cyclical manner.

Cost-benefit analysis is essentially a procedure for investment appraisal. It provides a means of comparing the financial resources to be employed on a specific project with the financial benefits likely to be obtained from it. A related and similar procedure, cost-effectiveness analysis, on the other hand, is designed to measure the extent to which resources allocated to a specific objective under each of several alternative choices actually contribute to accomplishing that objective. A third approach is that of Planning-Programming-Budgeting (PPB) which is increasing in use, particularly in the evaluation of public expenditures. Its increase is due in part to a growing appreciation of the complexities in the examined processes and a better understanding of methodological and conceptual hurdles yet to be encountered in undertaking cost-benefit analysis.

PPB-systems are intended to provide an aggregate long-range plan for the accomplishment of an agency's objectives, with continuous feedback and updating of information which will enable the decision-making process to operate more effectively. It tends to relate all activities to identified fundamental objectives and establishes relationships between activities and objectives. It makes possible the consideration of long-range aspects and programs showing all related costs and providing for a systematic analysis of alternatives.

Program-budgeting can be used in evaluating current programs, assessing program proposals in terms of behavioral objectives, allocating financial resources considering total needs, and providing assistance in cost-control, program analysis, and the appraisal of program performance. In addition, it serves to make the budget more understandable and this may force a clear definition of educational objectives, the setting out of budget categories in terms of programs, the identification of costs, and some idea of the most economical way of attaining objectives. It ensures a regular review and revision of the program and it can be used with long-range planning and revision. It has proved effective where detailed data are available relating to food, library, and other services, reasonably effective for guidance counselling and testing services, less valuable for instruction. It has been little used for administration where data are not forthcoming. Wide variation in record-keeping methods adds to the problems encountered.

Some of the difficulties presently confronting those who wish to make greater use of this device may be summarized: (1) a lack of necessary data as basis for developing measures using social costs of inputs and social benefits of outputs; (2) inability to discover clearly defined programs, goals, or objectives and to obtain the necessary funds for follow-up data and related appraisal information; (3) inappropriate use of this device, with consequent criticisms; (4) opposition by those with vested interests, some of whom feel that the technique will curtail their program and others opposed to an emphasis on economic factors: and (5) a shortage of qualified personnel to undertake such analysis. In spite of these and other reservations, the use of PPBS, cost-benefit procedures, and the annual audit can be expected to grow. Resource allocation warrants the systems approach program analysis or other evaluation procedures in the making of effective decisions.

The present limitations to the use of cost-benefit analysis must be recognized by producers and consumers. It should be considered as one segment of the appraisal process, and complementary tools should be provided. It is currently undergoing methodological and conceptual analysis related to data gathering, analysis, and research techniques. Devising a common scale is a most difficult issue, considering that costs and benefits are often separated by a considerable time span, that the group incurring the costs may not be the same as those receiving benefits, and that the question of "costs and benefits for whom," when raised, is difficult to answer and hardly a problem for the economist. As cost-benefit studies normally exclude non-economic variables, this limits its relevance for decision-taking and evokes criticism.

In considering the use of cost-benefit analysis for education tasks, a human capital approach may be adopted, in part because cost-benefit applications have been used in manpower development programs more than elsewhere. This would allow us to calculate rate of return on investment in education as the ratio of economic costs to benefits for a variety of education programs. One risk in adopting such an approach is that some programs would appear to yield lower economic returns than certain other programs or investment, and might be scrapped despite sound reasons for continuing them. In education, there is no empirical necessity to maximize output of goods and services in terms of economics.

Planned Change

It is not the purpose of this paper to do more than suggest appropriate tools for planning and to note certain uses for them. In terms of input, process, and output, a systems approach can be profitable, in part because it emphasizes the need to know precisely what we hope to accomplish, to discover the most efficient way to achieve it and streamline the process. Many educators accept such procedures for training, but withhold approval when it comes to general education. Some who have adopted this approach have had greater success in setting immediate behavioral goals than intermediate or ultimate objectives. With the current dynamic situation, most of us would hesitate to solidify the current process through systematizing content and methods and streamlining the process. Yet we agree that the systems approach has applications in education. Our problem is to find them.

Modifying Attitudes to Change

The T-group or sensitivity training conducted in human resources laboratory meetings is perhaps the most popular training device now in use. Certain of the leaders in this movement assume that there will be a decline in bureaucracy and business practices which have solidified with time, and gained strong acceptability. To replace such bureaucratic procedures, the T-group enthusiasts suggest that there will develop organic adaptive systems which are less predictable and which will allow for more individual initiative. They hope to replace current sublimation

efforts by individuals with increased opportunities for catharsis, and to supplement them with efforts to learn how to live and tolerate ambiguity with a greater sense of play and individual freedom through work -- all of which will ensure high motivation and greater productivity. Some have suggested that, if anything, this procedure would be of more importance for school administrators and teachers than business executives and workers.

T-group sessions tend to vary, but most are almost non-directive and leaderless. They vary in length from a week-end to a week or longer. They are expected to provide for an immediate existential confrontation of the participants. Level one sessions are considered to be evocative, with free play of emotions, feelings, and sentiments, and behavior in them may be non-rational and at times regressive. Level two sessions are more rational and the participants are expected to understand more about their behavior, to appreciate rationalization, and to incorporate what they glean from experiences probing into their home life and the business world.

There is some question about the extent of transfer and the changes in outlook and action of participants. Certainly there is need to assess the potential of this approach for the education field for testing other procedures and devices which may be used to change peoples' attitudes, solicit their support, and modify behavior patterns.

The problem of converting theory to practice and transforming plans into action is as pertinent here as in research. Consideration must be given to designing strategies to persuade a majority to accept the ides of planned change. Because of the implications of control, this will not be easy, since to some it will seem to infringe on personal liberty. For a minority it may be necessary to institute re-education processes.

Data to be Collected for Planning

This section of the paper will attest to the need for population, enrolment, and financial forecasts and data banks and for a modern communication system so that they are available on request. Forecasts in education are generally tied in with population forecasts, and to meet all needs they must be long-term -- it takes many years for universities to turn out quantities of professionals. Forecasts of future school attendance can be no more reliable than population forecasts. Because of the number of variables and the possibility of change, some statisticians provide several forecasts according to various assumptions. This can be confusing for the layman who strongly favors issuing one official forecast which will be changed as the situation changes.

A second question in education relates to the number of forecasts that should be made. Enrolment and cost forecasts are needed for all Canada by province, administrative unit, and institution, grade level, subject enrolment, etc. Perhaps this is enough to suggest the need for coordinated efforts in this area and in decisions as to the forecasts to be provided.

Somewhat related data covering a wide variety of subjects are needed for planning and research. They can be stored in data banks and collected through regular surveys, through up-dating figures on a regular schedule, or as a result of research projects. It is important to decide what should be collected and how the data should be compiled and stored to be readily retrievable by researchers, administrators, and others. There is some question as to whether such data should be compiled as part of a social science data system, but little argument about the need for close liaison and the recording of data to be compatible to the social sciences and available for interdisciplinary studies.

Summary

The concern here is in a relatively new area and one so vast as to suggest the assembling of as many resources as possible to contribute to a structure for planned change, designed to provide for a total world-wide social-cultural-economic structure. Because those working in education throughout the world do not as yet possess a communication structure capable of providing for shared consultations, cooperative planning, or even the sharing of comparative data and experience, it will be necessary to designate those efforts which should be given priority at the international, national, provincial, and district levels. Reaching agreement on tasks to be undertaken, and formulating them as working programs is a task for the next few years.

The elements of planned change will include the utilization of scientific findings and the generation of new materials, through research where necessary; a study of pertinent theories of change, both active and manipulative, and which take into consideration strategic variables; a consideration of influence on those who will be affected and on systems in operation; and recognition that both collaboration and conflict are inevitable. One problem here will be to get theorists and practitioners to work together, since there is generally a conflict of interests.

In Canada we must be concerned with a variety of matters: (1) provincial responsibility for education when most countries have central control of education; (2) the need for definition of the role of the expert in both action and practice; (3) newly-emerging concepts of collaboration among "changers" and those to be changed; (4) the best procedures to assemble knowledge and the best use of it. The question of freedom under planning must be faced, as must provision for creativity and individual expression. As our environment becomes more highly sophisticated and complex, questions of power balance and values will be introduced.

We noted the necessity for setting out goals to serve as points for structuring programs on short and long term bases. Where appropriate, behavioral objectives should be used as they are more clear cut and concrete, and make it easier to assess progress and evaluate success. We also commented on strategies for change, first noting that some appreciation of the climate for change is valuable, since the effectiveness of a new program is often largely determined by the situation at the time it is introduced. This is

often directly related to the degree to which members at all levels of an institutional hierarchy take part in the fact-finding and diagnosis that precedes the formulation and reality testing of goals and programs.

We noted that strategies available to encourage the adoption of innovations in education range rather widely, and suggested that those employed should have some relationship to the current climate, to an unfolding democratic concept of man and his shifting wants and needs, and to a concept of power to come from cooperative involvement, reason, and a changed concept of organizational values: a concept that is less bureaucratic but more humanistic and permissive than generally found at present.

When we turned to methodology, we suggested that in line with much modern thinking concerning planned change, we favored the harnessing of scientific resources and adoption of scientific findings as the best tested experience and direction for strategies to be adopted. At the same time we felt that this should be tempered with an appreciation of the importance of artistic values. The scientist needs to be concerned not only with advance but with actions which are not detrimental to human dignity and the preservation of the natural world for posterity.

Research and development can play important roles in a planned change program: conducting surveys to provide basic data for decision-making in determining goals and making plans; in many instances, feasibility modifications, and providing a basis for general application; field tests and trial runs for implementation may suggest a change in strategy. In some instances experiments may be justified to provide findings required for further advance.

Generally, research and development endeavour saves money over trial and error, provides validation for appropriate moves, and aids in assessment. One of the greatest needs today is for ingenious approaches in devising new tests and measurements. It may be that for the time being many will have to be based on subjective opinion, but these should be structured according to the goal aimed at.

Effecting changes in education is a long-term project. As with experiments where the real problem is converting theory to practice, so with planning the chief problem is adopting the guide lines to the situation, while ensuring that advance is aimed at the goals set. To accomplish this, there is a need of a two-way communications network. At the same time, change must be effected within the political organization, social institutions, and other organizations which are interested in mankind and have vested interests in laws passed, moves, beliefs, and theories for change.

This raises the question as to whether or not those advocating planned change should become change agents. It is not unusual today for business and other groups to use a variety of devices to effect changes in attitudes. The T-group is most popular a present, but research is needed to assess the degree of success from its use.

At the same time, there is a trend towards employing more economic and engineering techniques, such as cost-benefit analysis, as tools to determine the cost and value of the program. With a scarcity of money and other resources to be allocated to meet an ever-increasing number of demands for social service and economic needs, it is likely that more and more use will be made of such tools in decision-making. The economics of advance effects education as much as it does any industry.

Concern for the future and the planning of strategies designed to reach predetermined goals -- in other words, the invention of the future -- is the concern of specialists who class themselves as futurologists. For them, man, through planned change, can more or less determine the sort of world he will be living in at any given future time. It should be added that not all members of this camp are in agreement about goals or basic strategies. In addition, there are many persons who ask if it is necessary to go that far. Some may agree to the making of projections, to cost accounting and to the use of science, but still favor free enterprise with limited controls. Others may believe in more control, but be happy to make changes as the need arises. Still others, somewhat impatiently, favor compulsion where necessary in order to accomplish the objectives they deem desirable. This is the situation we face as we consider planned change in education.

9

EDUCATIONAL PLANNING:
SETTING REAL TARGETS FOR EDUCATIONAL DEVELOPMENT

by

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The major function of educational administrators is that of making decisions related to future actions to achieve organizational goals. Many of these decisions require a deep understanding of the complex relationships of a host of aspects of school systems and of the social and governmental systems which encompass them. Administrators necessarily must bring to bear upon these decisions a wide variety of insights about the forces which impinge upon problems. Successful administrators have been politically and socially sensitive individuals, aware of the diverse forces that come together and focus upon each issue. A "savvy" old-time administrator would simply know intuitively the right decision that would make changes, maintain stability, and keep people happy, all at the same time.

However, managing schools, especially when making educational decisions which require choosing among costly alternatives, frequently requires more than intuitive judgement. Procedures and mechanics which permit a more precise evaluation of the consequences of alternatives need to be employed before decisions are made, in order to improve upon the ultimate decisions. More importantly, a systematic procedure which expressly mandates the consideration of a number of relevant information sources also needs to be employed.

We do not scoff at the "shooting from the hip" administrative style which, in many instances, was enormously successful in days gone by and often is today. In fact, we would maintain that most administrators who have successfully employed this method have been utilizing, implicitly, a systematic set of procedures in reaching their conclusions. We have referred elsewhere to a systematic planning procedure as "any orderly, systematic investigation designed to help a decision-maker identify a preferred course of action from a set of possible alternatives" (Alkin and Bruno, 1969). Clearly, there is nothing new about "modern" planning procedures (unless it is that the procedures are being made explicit). Similar procedures have been employed for decades by administrators who might have referred to them as "systematic common sense."

However, it is important to bear in mind that education has become enormously more complicated in recent years and as a consequence it has become more difficult for one to carry, implicitly, all of the procedural steps in his mind, consider all the variables and data on each, and come up with a final decision. That is to say, with the increasing complexities of education and of the educational enterprise, it seems

less possible to be a successful administrator and reach satisfactory decisions when planning remains implicit. Thus, it is more important now than ever before for educational administrators to seek to make explicit the procedures of educational planning employed in their work.

Planning

It seems appropriate at this point to discuss what is meant by the term *planning*. No definition would be complete without a word from Webster who defines the verb *to plan* as, "to devise a scheme for doing, making, or arranging." The deficiencies of this definition emanate from the breadth of its terms, which fit many situations, and its overlooking who would be "doing, making or arranging." Moreover, it is only implied that the "doing, making, or arranging" is related to events which will occur in the future. Since an orientation towards the future is an important part of the planning enterprise in governmental (e.g., educational) systems, this orientation should be explicit in the definition. Thus we can see that there are problems in educational planning which are related specifically to the facts that (1) it takes place within the governmental sector, and (2) not only are there sets of mores governing the ways in which decisions take place in this sector, but there are also specific organizational constraints. So much for Webster.

It is relatively easy to see how one might simply revise, modify, and expand Webster's definition in accordance with the problems with which one is concerned, thus bringing each individual's unique conceptual framework to bear on the way in which his definition of *planning* is developed. It is not surprising that the word *planning* has been widely used with a number of different meanings, and there are a myriad of definitions of the term. Many of these definitions, particularly as they relate to planning in governmental enterprises, have been summarized by Millett (1947) and by Dror (1963).

To minimize confusion, a working definition to be used within the body of this paper is in order: By "planning" we mean *the selection, analysis, and presentation of data to facilitate optimal choices from among alternative future courses of action*. This definition is oriented to the future and to action and decisions rather than to such aims as general scientific inquiry or acquisition of knowledge *per se*. The orientation to actual decisions and the fact that these decisions are made within the governmental sector indicate a concern for optimality of choices, which must be the best possible from among a number of alternatives, based upon a specific set of decision criteria.

However, when the planner considers various alternatives for attaining a specific objective, there is no certainty that optimality will be reached. The word "optimality," therefore, is intended to imply a continual striving for optimization, with the recognition that the choice will be the best alternative that can be identified or discovered, and allowing for reasonable time and effort in the analysis.

Information-Provision and Decision-Making Functions

In speaking of the "presentation of data" and "facilitating choices," it is evident that we choose to draw a distinction between the information-provision function and the decision-making function. The information-provision function includes the designation, collection, and analysis of information appropriate to the problem, to serve the decision-making function. This distinction between functions does not necessarily preclude both functions being served by the same individual or unit. However, it is my contention that it must be perfectly clear which function is being served. Thus, although a decision-maker might serve as his own planner, we maintain that he must understand which function is being served. This is not incompatible with the views of others in the field. Dror maintains:

> *Planning is substantially -- and, in most cases, also formally and legally -- a process of preparing a set of decisions to be approved and executed by some other organs. Even if the same unit combines planning functions with authority to approve and execute, these are distinct, though interdependent, processes which must be kept analytically separate. (Dror, 1963, p. 51)*

The definition of planning which we have already presented (page 2) referred to the presentation of data as an important part of the planning function. "Presentation", of course, refers to the reporting function of the planner's job, but it is important to note in this regard that reporting by planners should be in a form useable by decision-makers in selecting among alternatives, rather than an exercise in academic verbosity or a sophisticated quantitative manipulation. The reporting function cannot be performed by the simple preparation of a final report, however relevant it may be. Throughout the planning process there is the necessity for continuous feedback from planner to decision-maker and conversely.

The CSE Evaluation Framework and Educational Planning

At the Center for the Study of Evaluation at UCLA, we have adopted a concept of evaluation compatible with the views of educational planning previously discussed in this paper. Our definition of evaluation in quite similar in many respects to common definitions of planning (and almost synonymous with the definition of planning presented in this paper). The definition of evaluation differs primarily in breadth, in that the set of evaluation concerns includes but goes beyond the planning issues. This will be readily noted in an examination of Chart 1, which depicts the Center's framework of evaluation. Included in that framework is a specification of five general decision areas in the educational improvement process and the information provision (or evaluation) stage associated with each:

Chart 1

Decision Areas and Evaluation Requirements

Evaluation	Decision Area
Needs Assessment	Problem Selection
Program Planning	Program Selection
Implementation Evaluation (Intervention) Progress Evaluation (Intervention)	Program Improvement
Outcome Evaluation (Non-Intervention)	Program Certification

1. *Needs assessment* is a statement of the present status of the educational program or system compared with desired outputs or stated needs. A needs assessment evaluates the gap between the goal and the present state of affairs.

2. *Program planning* is concerned with providing information which will enable the decision-maker to make program decisions, i.e., to select among alternative processes in order to make a judgement as to which one of them is most likely to fulfill the critical needs previously discovered.

3. *Implementation evaluation* determines the degree to which the program selected for implementation has indeed been introduced in the manner in which it was described and to the group for which it was intended.

4. *Progress evaluation* provides information about the relative success of the program during the course of its introduction, in terms of both the intended objectives of the program and observed unintended consequences.

5. *Outcome evaluation* provides the decision-maker with information that will enable him to make decisions about the program as a whole and its potential generalizability to other situations or locations.

Further clarification of the Center's definition or evaluation or its five-stage conceptual framework may be found in a recent issue of *Evaluation Comment* (Alkin, 1970).

The first two stages of this framework are conceived as constituting the planning function. They have an orientation towards the future. They focus on an information provision function which has as its goal the selection, analysis, and presentation of data. Each is concerned with the subsequent decision among alternative courses of action. It is apparent, then, that we choose to consider planning as a composite of two separate but interrelated decisions: *problem selection* and *program selection*. Evaluative information is provided for these planning decisions by needs assessment and program planning. We will refer to the needs assessment evaluation, the decision associated with it, and the interactions between these events as "planning and decision, Stage One." Similarly, the program planning evaluation, the program selection which accompanies it, and the associated interactions will be referred to as "planning and decision, Stage Two." Let us now consider these two aspects of the educational planning problem.

Needs Assessment and Program Planning: An Overview

Decision-makers are frequently forced to make choices related to school-program priorities. Given the scarcity of resources, decision-makers must make decisions about the problem area most in need of attention. This problem-selection decision is based in large part on what we call a

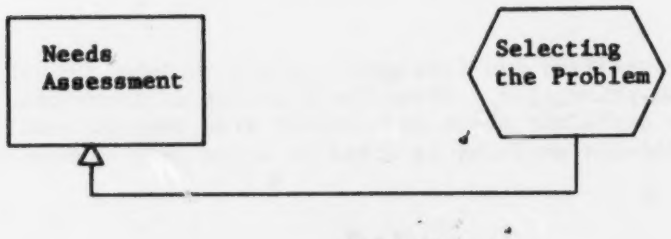
needs assessment. It may deal with selecting broad goals for consideration in the total program of the school, or with specific behavioral objectives for a specific subject area. That is to say, a school principal might be concerned with selecting the broad goal area (e.g., scientific processes, reading readiness, etc.) most appropriate as an area of concern in deciding how to invest his limited resources. On the other hand, the problem-selection decision might be concerned with determining the appropriate specific behavioral objectives in a course in reading or biology. In both cases, the problem-selection decision is based in large part on a needs assessment.

The purpose of a needs assessment evaluation is to examine the gaps between the desired goals and the actual status of the system. It simply is not appropriate to talk about the goals or objectives of a system or a program without a realistic conception of how well the students of that program are actually doing, since the ultimate decision about the importance of a goal or an objective must in some way relate to information on how well students are doing. That a goal is considered important by the community, the teachers' association, the Provincial Board, or others, does not, in itself, constitute a sufficient criterion for goal selection. If students are already doing exceedingly well in a particular area, it would not be reasonable to select that area as one on which the decision-maker should place considerable further emphasis or in which he should invest additional resources. The evaluative problem, therefore, is essentially one of examining the needs of the students and society relative to how well students are presently doing with respect to those needs.

Diagram 1 shows the basic relationship between the two major activities of Stage One. A needs assessment is initiated in response to an anticipated requirement for making a selection between goal areas. The needs assessment provides information to the decision-maker and leads to a problem-selection decision, which may lead to a consideration of alternative programs for achieving the specified goal area (Stage Two), or to a further needs assessment in the general goal area which has been selected. (This feedback and recycling is represented by the arrow in Diagram 1). For example, if the Stage One decision specifies the further consideration of biological sciences as the area of concern, then it might be quite reasonable to conduct a further needs assessment in order to determine the sub-areas of biological sciences which are most relevant and most in need of attention. This additional needs assessment would provide the information required in the program development of Stage Two.

Diagram 1

Planning and Decision Stage One



There are a number of instances in which the reader may feel that some relationships, decisions, or actions do not seem to be well defined, due to the oversimplification of the diagram. However, we have felt it necessary to keep the diagram as uncomplicated as possible, in order to make the stages easier to understand.

The simplification of the diagram may seem to imply that within each stage the evaluator performs his evaluation and provides the resulting information to the decision-maker, who only then makes his decision. In point of fact, there may be a number of small decisions made by the decision-maker during each evaluation stage. It would be somewhat ridiculous to imagine the evaluator working at his specified job and not communicating with the decision-maker until the end of each stage. There may be interaction at a number of points. The planning framework is presented as an abstraction to aid in understanding the basic function that takes place within each stage.

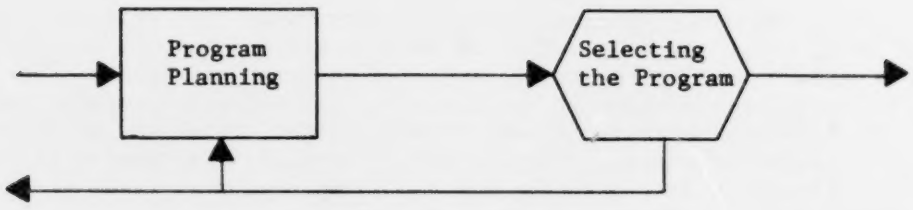
The planning activities of Stage Two lead to a decision about selecting a program. The decision-maker makes a decision as a result of the needs assessment about a specific problem area (or objective) in which his system is deficient. He must then make a decision about an existing program designed to achieve that objective. He may choose from among a number of existing programs prevalent in the field, or may call upon an educational team to develop a program uniquely suited to the specified objectives.

The job of the planner is to provide information about the possible future impact of the introduction of the alternative programs. He is asked to consider the various programs that have been suggested and to provide information about the likely impact of each program in terms of the extent to which each might achieve the prespecified objectives. Thus, part of the planner's job at this stage deals with the collection of planning information related to the impact of the introduction of a program. In order to accomplish this task, he may need to rely upon the use of "hard data," upon "history" (past success of the program), or the use of expert judgement (hopefully in a systematic fashion).

As another part of his job in Stage Two, the planner will want to consider the relative difficulty or ease of performing an evaluation of the program in the succeeding stages. That is, if the program being considered will not lend itself to feasible and meaningful evaluation after being introduced, the decision-maker might feel this to be a rather strong impediment to selecting that program. Thus, his second major information collection task in this stage requires the development of an evaluation plan for each of the three succeeding stages in order for him to make a judgement about the difficulty or ease of evaluating the various programs.

Diagram 2

Planning and Decision Stage Two



The major activities of Stage Two are shown in Diagram 2. The decision of Stage One has led to a program planning evaluation which in turn provides information that enables the decision-maker to select a program. In the case where the Stage Two decision actually leads to the selection of a specific program, the stage is complete and the next set of information concerns deal with what happens when the program is implemented.

However, after examining the program alternatives, the decision-maker may be either dissatisfied with each of the alternatives or unwilling to make a decision without considering additional alternatives. In this instance, the program selection decision would lead to a request for a further program planning evaluation, which would provide the decision-maker with additional alternatives for his consideration.

As a third possibility, if none of the alternatives (programs) seem reasonable on the basis of the evidence (information) presented, the decision-maker might be convinced that it would be unlikely that a suitable alternative could be found. In this instance, the feedback from the decision-maker in planning and decision Stage Two might refer to the decision of the previous stage. That is, the decision-maker might want to reconsider the selection of that specified goal area and consider alternative goals or problems. These relationships are reflected by the various arrows in Diagram 2.

Needs Assessment: Setting Real Targets for Educational Development

At the risk of being redundant, we feel that it is appropriate to comment further on the purpose of a needs assessment. The purpose of the needs assessment stage is to determine the goal areas or objectives of highest priority. Too frequently, in our estimation, planners tend to consider the planning process as a single entity rather than as two stages. Thus, they become concerned with the selection among alternative programs before adequate consideration has been given to the most appropriate objectives to be served. We do not deny the importance of what we

have referred to as the program planning stage, but we feel that much systematic attention must be paid to needs assessment. Most of the traditionally recognized tools employed by the planner (operations research techniques, gaming, simulation) are techniques most applicable to program planning.

In our view, insufficient attention has been paid to establishing systematic procedures for setting real targets for educational development. There are a number of aspects to this problem. The steps in the needs assessment procedure may be explained as follows:

1. It is necessary to identify the domain of potentially relevant goals for consideration.

2. It is necessary to identify the constituencies to be included in making judgements about the relative importance of goal areas.

3. A procedure must be specified as to the manner in which the views of various constituencies will be combined in attaining a priority rating for goals.

4. A sub-optimization must take place in which an initial listing of potential goals or objectives is selected for further consideration.

5. Measures must be selected or developed for each of the goal areas under consideration.

6. A test information collection and analysis procedure must be defined and implemented.

7. In terms of the criteria developed, a framework must be stated which indicates what level of achievement of the criteria will be considered as successful.

8. The criteria must be applied in order to determine the gap between expected and actual accomplishment.

9. A "decision rule" must be determined to use as a basis for analyzing the "value" of various goals.

10. The decision rule should be applied in order to determine the relative order of priority of the various goals.

These ten steps define a procedure for setting real targets for educational development -- namely, targets or goals relevant both in terms of their considered value and in terms of their representing actual needs (gaps between the existing and the expected).

Needs Assessment Evaluation: An Application

The Center for the Study of Evaluation is attempting to develop a systematic procedure for performing needs assessment at the school level. As a first step in this effort, the Center has produced for field testing what is referred to as an Elementary School Evaluation KIT for planning and decision stage one. The KIT is designed to be used primarily by the elementary school principal. It has been written and organized to aid in selecting, collecting, and interpreting the information he will need in making the educational policy decisions of Stage One. The Center recognizes that the typical school principal concerned about the instructional improvement process usually acts as his own evaluator. That is, the principal maintains not only the decision-making function but also the information-provision function referred to above. The KIT has been designed to facilitate the information-provision function and this will lead, hopefully, to decisions based on more complete information.

The Center also intends the KIT to be employed by school administrators at a higher level. A school superintendent, for example, can use it to examine the relative strengths and weaknesses of the schools in his district. Since the KIT can be used by the principal without the assistance of specialized consultants, there is no limit to the number of schools that can employ the KIT. It can be used at the local, district, state, and national levels.

The KIT is composed of five instructional booklets describing the procedures that the principal can use in following the ten steps of needs assessment described above:

Booklet I: Description -- general overview of the purpose and content of the KIT.

Booklet II: Choosing Goals -- detailed step-by-step procedures which the principal can use in determining what educational goals should be examined at his school.

Booklet III: Selecting Tests -- procedures and guides for making an informed decision as to which of the currently available measures should be used in assessing student progress towards each of the selected goals.

Booklet IV: Collecting Information -- precise instructions for procuring the selected measures, administering tests efficiently, organizing the collected data, and for interpreting and reporting evaluation data with special emphasis on examining the results relative to the school's "inputs" (e.g., geographic location and socio-economic level of the community).

Booklet V: Selecting Critical Need Areas -- organized and rational procedures for deciding which goal area(s) are of greatest concern and consequently should be selected.*

The booklets and their appendices also contain the materials needed for implementing the recommended procedures and are designed to supplement the principal's information system with a set of specific procedures and materials for gathering relevant information about the needs of his students.

In the following pages, we will discuss Booklets II through V in greater detail.

Booklet II: Choosing Goals

This booklet describes a procedure for determining an initial listing of potential goals or objectives for further consideration. Included within this booklet is a description of activities One through Four in the needs assessment procedure described on page 8.

To achieve this end, the KIT contains a comprehensive set of 41 goal areas, including 104 sub-goals or objectives for elementary education. The objectives were compiled from reviews of elementary school curriculum guides and related sources. They encompass the full range of student performance (knowledge, skills, attitudes, interests, etc.). Chart 2, which is excerpted from Booklet II of the KIT, is included here as an indication of the kinds of areas included as goals.

Booklet II also describes step-by-step procedures for the principal's use in determining the goals for which he should collect data. Described are two alternative methods that might be employed in this initial goal-selection step. One method describes in detail the way in which a principal might employ a rational approach to goal selection, based primarily upon his own insights and judgements. The second method discussed is a "collective-views" approach to goal selection, in which the principal is supplied with a printed set of goal-assessment cards matching the 104 sub-goals or objectives. Included is a description of the way in which these cards may be utilized in obtaining the views of various constituents and in analyzing and combining the results of various ratings. We would anticipate that if the latter method were employed, the principal would generally obtain the views of parents, teachers, school board members and other government officials regarding which goals are of primary importance.

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* Portions of this text dealing with the description of the Elementary School Evaluation KIT are abstracted from project materials prepared by Dr. Ralph Hoepfner, Director of the School Evaluation Projecy of the Center for the Study of Evaluation.

Chart 2

OUTLINE OF 145 GOALS OF ELEMENTARY SCHOOL EDUCATION

AFFECTIVE

1. TEMPERAMENT: PERSONAL
   - A. Shyness-Boldness
   - B. Neuroticism-Adjustment
   - C. General Activity-Lethargy

ARTS-CRAFTS

5. VALUING ARTS AND CRAFTS
   - A. Appreciation of Arts and Crafts
   - B. Involvement in Arts and Crafts

MATHEMATICS

15. ARITHMETIC CONCEPTS
   - A. Comprehension of Numbers and Sets in Mathematics
   - B. Comprehension of Positional Notation in Mathematics
   - C. Comprehension of Equations and Inequalities
   - D. Comprehension of Number Principles

16. ARITHMETIC OPERATIONS
   - A. Operations with Integers
   - B. Operations with Fractions
   - C. Operations with Decimals and Percentages

19. MEASUREMENT
   - A. Measurement Reading and Making
   - B. Statistics

SOCIAL STUDIES

41. APPLICATION OF SOCIAL STUDIES
   - A. Research Skills in Social Studies
   - B. Citizenship
   - C. Interest in Social Studies

Booklet III: Selecting Tests

At this point, the initial screening of the total domain of goals has taken place and the first sub-set of goals has been selected for further consideration. Booklet III deals with the fifth step in the needs assessment procedure, as outlined on pages 15 and 16. Having decided on the goals of interest, measures must be selected or developed for each of the goal areas under consideration.

In order to assess the level of student performance relative to a goal, some type of measuring instrument is required. Since hundreds of tests are available to the school, the principal must decide what tests and measures are needed for his purposes. The third booklet of the KIT describes the procedures for choosing a test at the first, third, fifth, and sixth grade level for almost all of the 104 goals or objectives. A compendium of tests organized by grade level and goal is included in the KIT. We have attempted to examine every published test and subtest appropriate at the elementary school level and to categorize these tests in terms of which of the 104 goals or objectives each best satisfies. This has been done for each of the tests in terms of its appropriateness at the specific grade level. All of these tests and their subtests have been evaluated by measurement experts for such characteristics as meaningfulness, examinee appropriateness, administrative useability, and quality of standardization. The list of measures, the evaluations of each of them, and a discussion of the bases for the evaluations appear in the booklet.

Another possible approach to the information-selection problem (which is not presently included in the KIT) would be to describe a procedure whereby schools might start from broad goal statements to derive sub-goals, objectives, and finally behavioral objectives in order to develop an individual criterion-referenced test for the appropriate goal area. Existing materials such as the Instructional Objectives Exchange, which has wide listings of behavioral objectives by subject area along with associated test items, would be of assistance in following this approach. Nonetheless, the development of individual tests would be an arduous task and probably is not feasible at this time for most schools and districts.

At this point in the procedure, the principal has (1) decided on a tentative selection of potential goals for futher examination, and (2) determined appropriate assessment instruments for evaluating student achievement in the selected goal areas. Let us examine the next step.

Booklet IV: Collecting Information

Booklet IV deals with the needs assessment procedures discussed in steps Six and Seven on page 8.

Step Six is the definition and implementation of a test information collection and analysis procedure. When the goals and their measures have been selected, the principal must direct, or be responsible for directing, the test administration. Two procedures are described in the KIT for doing this. The first method involves administering every test to every student. This procedure is recommended when there are just a few students at each grade level or when the school wishes to use individual test scores for counseling or class placement. On the other hand, if the sole purpose of administering certain tests is to assess the performance of a group of students (such as all the sixth-graders), then the KIT recommends and describes a test sampling procedure. Economies of time and money will accrue from this sampling technique. Parts of this booklet describe the procedures for procuring and administering tests, determining the frequency of test administrations, and organizing and interpreting the collected data for analysis.

Although collecting appropriate data is properly a critical step in the evaluation process, it is equally important to analyze it in a manner that will elicit the needed information. This booklet of the KIT describes easy-to-follow procedures for doing this. These data analysis procedures have been organized into the following technical discussions: (a) *test scoring*; (b) *computation of average scores*; and (c) *computation of change in scores*.

The seventh step described on page 8 deals with determining a framework to indicate what level of achievement in a goal area would be considered successful. Information about how well the students of a school master an educational goal, even relative to a national or state average, is often misleading since it does not consider the particular characteristics of the school. Unfortunately, we do not know the relationship between inputs (non-school factors that influence student performance, such as socio-economic status of the community) and student scores for all variations in inputs.

Some information is available, however, about the relationship between a few input factors and tests measuring certain goals. If the principal is interested in that particular sub-set of goals, the KIT will provide him with a useful "Atlas of Scores" to interpret certain test scores relative to other schools having similar student bodies. If the principal chooses to use his atlas, it will be necessary for him to collect and/or estimate information about the various input factors. The KIT contains a description of the procedures he would follow to gather this data.

Booklet V: Selecting Critical Need Areas

After a school's needs have been assessed, and additional data on the discrepancies in various goals areas gathered through the use of measurement devices, the principal must select a single or limited number of goal areas for program development. Booklet V deals with the procedures

for setting real goals discussed in steps Eight, Nine and Ten on Page 8. The criteria of success determined in step Seven are applied in order to determine the gap between expected accomplishment and actual accomplishment. In step Eight, a decision rule is determined in order to make judgements on the value of the various goals. (In actuality this step may occur at a point well preceding the collection of data). Finally, the decision rule is applied to the data available for each goal area in order to determine the relative priority of each of the goals.

The Evaluation KIT offers a rational approach, considering a number of factors, to the selection of goal areas. It presents a table of index numbers that can be used by the principal as an aid in making his selection. The index number for a particular situation depends upon the following factors: (1) the relative importance of that area as determined in the goal selection of Booklet II; (2) the "utility" or "value" to the decision-maker of making an improvement in that area, given the current level of performance; (3) the probability of achieving a stipulated improvement in that area, given the current level of performance and the socio-economic characteristics of the school; and (4) the cost of the program. The index number provided to the principal is derived from a value or utility curve (number 2 above) and a probability curve (number 3 above). Thus, in order to use the table, the principal needs to specify the relative importance of each area (number 1 above), which was derived from Booklet II, and the current level of performance in each area, which was derived from Booklet IV. For each set of data there are actually three index numbers, one each for possible programs of low, medium, or high expenditure.

Utilizing this table, a principal could examine each of the potential goal areas and determine a score for each. Relative priorities could be determined from the scores thus derived.

Conclusion and Summary

The process of educational planning and related decision-making requires the use of systematic procedures. We view the educational planning process as comprised of two activities: (1) information provision related to problem or goal selection, and (2) information provision related to program selection. The first of these we call needs assessment -- an area often overlooked in the planning process. The Center for the Study of Evaluation at UCLA has been attempting to develop systematic procedures for needs assessment -- to develop systematic procedures for setting real targets for educational development as part of the educational planning process. We do not propose that the work of the center is the only way to go about the process of target setting in educational planning. What has been presented is the attempt of one group to make some progress in this area.

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10

REPLY TO M. C. ALKIN

by

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I was particularly pleased that Dr. Alkin addressed himself to the integration of planning and evaluation. I was also pleased to find myself in substantial agreement with much of what he has said. Yet, there are some differences in our perceptions of this integration, and I would like briefly to explore them.

There is little sense in discussing planning and evaluation without defining what we mean by those terms. Today we have heard of many kinds of planning -- short-range, middle-range, long-range, strategic, tactical, and program planning -- and of almost as many kinds of evaluation -- forecast, interim, and terminal. In general, though, we can say that planning is the development of policy options and the analysis of their preferredness according to a set of system goals and objectives. Planning is something like choosing a "taxi" between two systems: we have some notion of where we are, and some notion of where we want to go, and we try to choose the best means of getting there, given constraints such as cost, time, and effectiveness.

Essentially, the role of the planner is to develop and document policy options and to organize information that will help the decision-maker assess their relative desirability. Because the planner helps to delineate the problem, to structure system objectives, to develop options related to these objectives, and to analyse those options in terms of their short- and long-range implications for resource requirements, costs, and effectiveness, the planning function is highly integrative, and involves a careful organization of useful information that includes evaluative data.

Thus, evaluation is part of the larger process of analysing policy options. We have heard much about the iterative nature of this process, about the successive, interdependent stages of defining the problem, selecting our objectives, developing alternatives, and analysing those alternatives. We have seen that part of analysing options is attempting to project their resource requirements. So, in the process of analysis, we develop more or less sophisticated resource models from which we derive cost models. Then we try to assess the potential effectiveness of the competing alternatives. In many cases, this assessment will involve evaluative data about similar or related programs that already have been implemented, and institutionalized planning will provide channels through which such data can come to affect the analysis of potential programs.

We can think of the iterative process as cyclical because it goes from the first stage to the last, and through the first again. More realistically, however, we must think of it as iterative within each stage. Two initial points emerge:

1. Planning is not a one-shot effort. Administrative decisions based on the development of different options can change during a program's life and at the program's end, when a new cycle is being considered. The planner helps to develop new dimensions of potential options as he gains experience with programs that have been implemented. Ideally, the planner's task will include following the implemented program in order to collect and organize data that will indicate the value of the assumptions he made in forecasting program performance.

2. If there is iteration within each phase of the planning process, it may not be helpful to stress the cleavage between the problem definition phase and the alternative analysis phase. In practice, these two phases are highly interdependent. As we gain experience in developing options and develop more realistic conceptions of the applicable constraints, our perception of the problem expands, and we may reformulate it. Or we may redefine our objectives even before we have selected an option and gained experience in program operation. Thus, when we stress that the process of analysis involves certain phases, we are using a systems approach that is not systematic in the sense of being sequential. Systems analysis is messy, and in working through a problem, we keep returning to earlier phases as our experience with that problem grows. If Dr. Alkin means to say that we begin with a problem definition phase and proceed finally to an alternative selection phase as the result of an analytic process that does not reconsider problem definition or reexamine objectives, then I would say that this cleavage may be too great.

Let us return to the kinds of planning and evaluation I mentioned before. One consideration that refutes the notion that planning is future-oriented while evaluation is not, is that program planning, which may deal with a program that has not been implemented and for which the system can provide no base case, attempts to project effectiveness, to evaluate what would happen if we allocated our resources in a certain way. So certain kinds of evaluation are futuristic.

The notion of evaluation changes again if we talk about it in terms of short-, middle-, and long-range planning. In short-range planning, analysis and evaluation focus on the probable, on a situation in which the necessary resources are fairly committed and the technology is highly developed. In mid-range planning -- perhaps five to seven years out -- the focus shifts to the feasible, to a situation in which the technology may have been developed but the resources have not been committed. And, in long-range planning, the focus turns to the potential effectiveness of what may be possible, although the relevant technology may not exist at all. Thus evaluation becomes less rigorous and more approximate as the planning horizon recedes.

Let me try to summarize some of my basic reactions to Dr. Alkin's address. I have tried to suggest that

-- planning is a kind of life-cycle process;
-- analysis of alternatives (and thus evaluation) within this process varies with the planning context and time-frame;

-- iteration is an essential trait of this process;
-- analysis is messy rather than strictly sequential.

I perceive needs assessment as something like modelling the base case, which is integral to the planning process because it deals with where we would like to go, given our present position. But it is very difficult to choose useful targets simply in terms of our value structure, so we must examine alternatives not only in terms of that structure and the options' potential effectiveness, but also in terms of required resources and associated costs. What I am suggesting is that evaluation is an input to the analytic cycle by which we hope to choose among competing alternatives.

I find it difficult to agree with the notion that evaluation extends beyond the issues of planning. On the contrary, I would say that the issues which have been described as evaluation issues also are crucial inputs to the planning process and to those iterations, re-examinations, and redefinitions that emerge from experience gained through options which have been realized. Evaluative data collected and organized by an evaluation team concerned with the effectiveness of implemented programs is essential to the operation of the planning cycle. It is essential to that reformulation and further development of policy options which the planner attempts to present to the administrator.

In sum, I would say that planning involves a number of components, including a whole range of issues that might fall under the general heading of evaluation. But other issues also impinge on the planning process. The issues that are important to "forecast evaluation," "interim evaluation," and "terminal evaluation" must concern us when we try to estimate the potential effectiveness of implemented programs or of those under consideration. Yet other dimensions -- such as resource constraints, program costs, and the effects on total system cost of implementing a particular program -- are important constituents of a planning function that strives to help administrators make better choices among competing alternatives.

QUANTITATIVE PLANNING TECHNIQUES IN PERSPECTIVE

by

R. W. Judy
Systems Research Group

In introducing this afternoon's session, I would like to attempt to bring into the perspective of decision-making in educational systems some of the things which have been done in this conference. As my point of departure I will describe a decision paradigm which I think pictures in one way (not the ultimate way, because there is no ultimate way) how decisions are made or, perhaps, ought to be made at various levels of the educational enterprise, whether they are made at the ultimate level of choosing objectives or goals, at a somewhat lower level of decision-making concerned with programs, or even at a lower level, where selection is made from among various teaching strategies or instructional materials. If we think of decision-making as a paradigm of activities, there is a good deal of commonality in the different kinds of decisions except, if you like, that some of them are made at a more strategic level and others at a more operational level.

Imagine that we are the beginning of a new decision-making cycle. I really do not care what the particular concern of the decision-maker is but, to relate this session to Dr. Alkin's, let us say that we are speaking of needs evaluation and the selection of objectives for an educational system. The decision might be made in a number of steps. The first is to elaborate upon an alternative or several alternatives to the present situation. Next, the decision-maker must attempt to estimate the benefits of the alternatives, the resources required by each, and the costs of the alternatives. He must juxtapose the benefits and the costs, compare them with previously examined alternatives, and ask himself, "can I live with one or more of the alternatives identified up to this point?" If the answer is no, he must go back to the beginning, elaborate upon additional alternatives, and go through the same set of sequential operations. If the answer is yes, he can proceed to implementation and the feedback routine of the traditional managed decision process.

Clearly, this model of the decision-making process in education is not an adequate one, but it does serve to introduce to you my two major concerns this afternoon: the information requirements of the decision-maker in education, and a model that we have been building to rationalize aspects of decision-making and planning in education.

A Note on the Information Needs of Educational Decision-Makers

This morning, in the session devoted to Dr. Alkin's paper, we spoke of the establishment and selection of priorities for educational systems. Obviously, this activity depends a great deal on the kind of

of information available to the educator. Whether or not the decision-maker can act independently (I suspect that in most cases he cannot), information about the preferences and needs of constituent groups of the population served need to be introduced here, with the trade-offs among the various objectives, their relative importance in the eyes of groups within the population, and so on. This information, by the way, deals mainly with value-preference systems and similar structures, and cannot be modelled to define objective functions or preference systems or utilities.

In addition, the decision-maker needs to have information about educational programs, plans, or policies, which translate themselves in the process of educational experience into altered behavioral outcomes, or, in any case, learning outcomes. So, the decision-maker needs information that helps him to make the translation from the information about the nature of programs and policies being carried on, to statements and information about the results being obtained. Related to this, he needs information about educational technologies about the unit cost of various inputs that go into the educational processes and programs. And, he needs information about resource requirements, with alternative plans and policies. I include everything from space to dollars to particular kinds of human input.

The work we have been doing has been overwhelmingly devoted to the design and development and implementation of resource requirement prediction models - models that will provide educational planners and administrators or their analysts with information about the educational policies and programs that they wish to explore, the enrolment projections they anticipate, and the specific resource requirements implicit in those plans, programs, and enrolment projections. At the present time, I think we are forced to say that we are in a relatively primitive state. Our group has given too little attention to the kind of modelling that deals with the translation of educational inputs into educational results.

CONNECT/CLASS: Resource Requirement Prediction Model

I would now like to be concrete and not general and talk about the kinds of models most familiar to all of us -- namely, resource requirement models. The fundamental purpose of resource requirement models of the kind that we have been developing is to provide a tool for educational planners and administrators, enabling them to analyze the resource implications of alternative educational plans, programs and policies. In an important sense, it is an experimental vehicle that allows the educational planner or administrator or analyst to explore and experiment with alternative futures for his educational system. It enables him to ask: "What if we had such and such an enrolment pattern over the next five to ten years?" "With given educational programs and policies, what would be the resource requirements, results, or implications?" "What if we were to alter our program offerings so that we made available entirely new and different sets of programs or offered our old programs through new educational technologies and curricula?" "What would be the implications of these

innovations for our specific resource requirements and for the cost of carrying out our whole program?" In short, it permits us to explore many alternatives before we commit ourselves to one.

I hasten to add, again, that such a model only looks at half the question. If you can imagine decision-making being a scissors with two blades - one concerned with evaluation of output and benefits, and the other concerned with the evaluation of inputs or resources - then only one blade is made available in these resource requirements models, and in that sense they are deficient and must be supplemented by other techniques. Among these other techniques (and probably most important at this stage at any rate) are the intuition and insight of professional educators about the likely educational outcomes of various plans, programs, and policies.

The models that we have been working on are open models in the sense that there is in no remote way any optimizing feature in them that tends to take the decision-making prerogative away from human beings. They are merely tools, and I must say very simple and modest ones, to permit the educational manager (and I use that word without any apology) to eliminate a lot of the tedium that comes from trying to calculate the cost and resource implications of alternatives. They allow him to focus his professional attention on evaluating the outcomes or likely outcomes of alternative programs, and they lift from him the burden of computing or estimating resource requirements.

The basic feature of CONNECT/CLASS can be described in terms of what I think are the minimal requirements of resource allocation models. In the first place, models must not be chained to the past; by this I mean that models must not be structured in such a way that the values of their coefficients or variables have been estimated exclusively from historical data, to reflect only the system that operated in the past. Some models use heavily certain statistical techniques and virtually guarantee results wedded to the past. For example, the exclusive use of estimation techniques based upon data accumulated in a school system over a ten-year period guarantees that any forecast of future needs will reflect the experience of the past. In many cases, this may be highly undesirable. So, models must have a very substantial experimental capability which allows the educational decision-maker, planner, or administrator to alter the assumptions, the plans, and the technology, to explore new ideas, and to cast individual thinking into the terminology of an accurate outer model, so that the implications of these things can be explored. We must not be chained to the past - if a model does that, it has defeated its own purpose.

Secondly, models must be adaptable to a great variation in the locale of decision-making. In devising models of general applicability (that is, models that can be used in a variety of school systems), we have had to acticipate substantial differences in the patterns of decision-making in various school systems. In some, decision-making may be highly centralized; in others, it may be highly decentralized. Further, if these

tools are to be general in applicability, they must be sufficiently flexible to handle the information needs of decision-makers at the lowest level of the organization - principals of smaller schools -- as well as administrators at the highest level. In other words, there must be a great deal of adaptability and flexibility in meeting the decision needs or the informational needs of decision-makers at the various levels in the organization. The requirement that models have a general usefulness also means that they must be adaptable to great variations in the kinds of problems or types of decision variables they are equipped to handle. Thirty-five per cent of the major questions faced by school systems are common, but there is a substantial amount of variation, so the experimental system or the model must be sufficiently adaptable to be able to address problems of great variations and reflect individual idiocyncracies. Finally, this criterion implies that models must be adaptable to great variation in the time-horizon of decisions. In some school systems, people are burdened with the problem of putting together next year's budget, of coping with immediate decision-making, or just avoiding immediate chaos or catastrophe. On other occasions, maybe even in the same place, more variables may be open to decisions in the long run. In the short run, as was mentioned in Dr. Alkin's paper, we are often stuck with an incremental budgeting system with very few degrees of freedom. In the longer run, more things are variable. Models must meet the needs of decision-makers for both short-term budgeting and longer-term planning efforts.

The third major requirement is that the models must be, both in conceptual nature and structure, comprehensible to the people in the system. Otherwise they will not, and probably should not be used. If models cannot be articulated in a way that comes across in understandable fashion, they will not be believed, and I think properly so. People have no business putting their faith in computer mumbo-jumbo or models that are so complicated that they do not lend themselves to be grasped by ordinary mortals. It seems to me that a second aspect of the comprehensibility requirement is that models be structured in such a way that decision variables which are familiar or can be made familiar to decision-makers in educational institutions are prominently displayed. In other words, this is a control system problem in which the educational decision-maker is turning dials, knobs, and gauges, making certain settings of policy and program designs. The knobs he turns, the dials he looks at, and the levers he pulls must be familiar to him, must relate to the kinds of decisions (class-size decisions, teaching assignments, space utilization policies) and must not be aggregative concepts embracing many, many macro-decision variables. The student-teacher ratio of an entire school system is one example of a macro-variable not related to the decision variables familiar to most people in the system.

A fourth requirement is that models must recognize their limitations. Users and builders of models must admit that they do not know very much. We certainly do not know enough about the value of educational outputs or even about the way in which educational processes move forward. These models, and the way in which they are used, must recognize that at this juncture at least, it is extraordinarily difficult to qualify certain things. They must recognize these limitations on our present knowledge and not force us to look only at those things which we know how to qualify and forget about everything else. The model must be consistent with the kind of data

available in our system, either presently with reasonable investment of time and effort.

Finally, if models are to be used, and there is no point in building them if they are not to be used, they must interface with and complement the budgeting and planning system of the institution. They should be interlaced with the operational data management system of the institution and the procedures by which budgets are developed and decisions made about the allocation of resources. Planning models or resource requirement estimation models should be capable of interlacing harmoniously with the operational data management systems of the institution.

In closing, I would like to provide you with a list of the problems that can, and cannot, be analyzed with the CONNECT/CLASS simulation model. If you have any questions about CONNECT/CLASS, I will try to answer them for you at the end of this session, and if we run out of time, please feel free to get in touch with me at SRG in Toronto.

THE PROBLEMS OF THE YORK BOARD OF EDUCATION THAT CAN AND CANNOT BE ANALYZED WITH THE CONNECT/CLASS SIMULATION MODEL

General Characteristics

The simulation model cannot:
- forecast exogenous inputs, for example, data on enrolment or rules on staff workloads
- predict community needs
- evaluate the quality of education
- create alternatives, although it does analyze them in economic terms

The simulation model can:
- calculate the resource requirements of alternative educational programs
- compare the cost of different administrative rules and staff, space, equipment, and enrolment
- enable school principals and Board of Education officials to manage and plan more effectively

Finance

The simulation model cannot:
- predict operating and capital allocations from Metro except where such allocations are governed by specific formulas
- control expenditures or serve as a cost accounting system except in a summary way

The simulation model can:
- provide detailed cost estimates for individual schools, programs within individual schools, individual activities within schools or, in an aggregate way, total cost of all schools, all departments, total program costs, and costs for the board offices
- be used on different assumed funding levels to indicate what activities, programs, enrolments, and teaching methods can be supported
- be the analytical mechanism of a Planning-Programming-Budgeting system
- facilitate preparation of annual budgets and long-term growth plans for review by senior authorities
- provide detailed justification of requests for operating and capital funds

Physical Facilities

The simulation model cannot:
- say what kind of space should be used in a given program, or set class size
- prescribe sizes of offices, etc. for teaching and non-teaching staff

- lay down policies on ancillary facilities such as libraries, cafeterias, etc.

The simulation model can:

- forecast detailed requirements for instructional, administrative and ancilliary space under alternative situations
- assess the impact on the need for various types of classrooms and laboratories of changes in teaching methods, enrolment, etc.
- pinpoint overages, shortages and per cent utilization of different kinds of space at different future times
- assess the economics of a phased construction program
- evaluate the effect on space needs of changes in the length of the teaching week, computerized scheduling, duration of the school year, etc.
- assess the economics of modular building systems and moveable partitions
- produce information for architects regarding the needs of a particular school

Enrolment

The simulation model cannot:

- predict enrolment
- predict student choices of courses in high school
- tell about community needs
- forecast success of students

The simulation model can:

- calculate resources needed for different enrolments
- indicate future enrolment on the basis of information regarding transition rates and new entrants into the system.
- assess different mixes of programs
- help cope with uncertainty and variations in actual enrolment
- evaluate the economies of scale
- help set timing of acquisition of new resources

Program Planning

The simulation model cannot:

- decide what programs and activities should be offered
- balance academic versus vocational subjects
- determine the need of the community
- design curriculum content

The simulation model can:

- compare the resources (staff, space, equipment, etc.) needed for different mixes of programs
- analyze the resource requirements for changes in the program
- compare the costs of educating students in regular schools, inner-city schools, special programs

Teaching Methods

The simulation model cannot:
- say which methods are pedagogically best
- generate new teaching ideas
- evaluate progress of students

The simulation model can:
- help make trade-off analyses of different teaching methods
- highlight the cost of introducing new methods
- calculate the rise in education costs with enrolment, given possible changes in teaching methods, e.g., changes in class size, team teaching, open concept teaching, individualized instruction
- help tie enrolment, program decisions, and available resources into a coherent plan

Staff Planning

The simulation model cannot:
- say what kinds of staff should be hired
- help recruit staff directly
- evaluate teacher performance
- determine staffing policy

The simulation model can:
- calculate the requirements of various staff
- take into account alternative staffing policies, such as workload, hiring practices, etc.
- analyze the costs of different mixes of staff
- predict future staff work requirements under alternative educational and administrative policies
- calculate future operating costs on a different staffing policy and salary scales

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QUESTIONS AT CENTRE STAGE

In the sixties, educational policy makers and planners were hard-pressed by unprecedented growth and rapid social change. Now, on the threshold of the Seventies, it seems certain that the tempo of change will accelerate. If this change is to be given direction and purpose, rather than being allowed to run its own course, difficult questions must be resolved and hard social choices must be made.

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SOCIAL PRIORITIES AND RESOURCE ALLOCATION

by

W. E. Haviland
Economic Council of Canada

My remarks relate to the general theme of the conference, "Social Goals, Educational Priorities and Dollars: Planning Education in the Seventies", and to the discussions we have had so far on this theme. I will try to provide one or two bridges between related planning and research.

I need hardly add that I am speaking for myself, and *not* for the Economic Council of Canada. The Council's views are contained in its recent *Seventh Annual Review* ("Patterns of Growth") and in earlier reviews. Those of you who are familiar with the Council's work will know that it has maintained a keen interest in education from various socio-economic points of view. Several previous speakers at this conference have said or implied that basic issues of educational goals and performance cannot be taken for granted in educational planning for Canada in the 1970's. Broad questions having to do with social priorities and resource allocation may well become a dominant feature of public discussion on educational policy and programs during this decade. Now that education has passed largely from the private into the public domain, educational planners must monitor more closely and systematically what Canadians, individually and collectively, expect from their educational system. This realization implies a whole series of policy choices and possible alternative patterns of resource allocation. If the economist speaks of such things, he does not create them - they result to some considerable extent from the rapidly rising expectations of Canadians for the "good life" and from technological change. For better or worse, the power over some decisions is passing from the suppliers or producers of education. Educational planning for the 1970's should expect considerable tension.

During the past decade in this country, the accent was on rapid growth generally, and the educational system responded magnificently. Now, the accent is shifting to socio-economic matters concerning relevance, equity, and efficiency. What are the educational goals of our contemporary urbanized, services-oriented society? Ultimately, performance has to be judged in relation to such goals. Of course, suppliers have been laboring long and hard, but if a thing is not worth doing, it's not worth doing well.

Questions similar to that following are moving to centre stage: what share of the limited resources available to governments should be allocated to education, compared with those allocated to health care, urban transportation, pollution abatement, roads, public housing, the arts, law and order, less developed countries, and a dozen other forceful claiments?

Although the resources committed to education total roughly $10 billion, counting foregone income of various kinds, the real cost is counted in terms of social and private opportunities that have been foregone. Of the government funds allocated to education in this country (now about $7 billion in total, as mentioned by Dr. Wisenthal, and growing rapidly to involve about one-third of Canada's population as students and teachers), what shares should go to the primary and post-secondary levels? Do all able Canadians who are interested have equal access to educational services regardless of their origins (ethnic, religious, income, rural-urban, interprovincial)? What share of the resources allocated to post-secondary education should go to the community colleges and institutes, compared with universities? How big a role should manpower training and re-training play in the 1970's? Or adult education, more generally? Or bilingual language training? Is the end in sight for the property (school) tax? What Canadians, and in what proportions, should pay the bill for post-secondary education, i.e., for educating *adults*? Should the trend toward students paying a smaller share of post-secondary costs continue? How much federal financing should there be, and on what terms? And last, but not least, what resources broadly intended to improve the educational attainment of Canadians should be spent outside the educational system altogether, e.g., health and welfare, and on-the-job training?

The economic tool known as comparative rates of return can be an aid to this level of decision-making, but only an aid. This is because of the difficulty of quantifying consumption and side effects of education and because of the inherent uncertainties of the future.

My second area of reaction concerns the important level of decision-making within educational institutions. How should the resources which are allocated to the various educational agencies and individual institutions be deployed internally to make their most effective contribution to the goals set by society (albeit with the professional advice of the educationalists)? Are there significant economies of scale to support institutional specialization? How much should be spent on undergraduates compared with post-graduates? How much on engineering compared with classics? How much on research (including educational research) and how much on buildings and grounds?

It is becoming increasingly apparent that educational planning in the 1970's faces increasingly hard choices, within a climate of growing skepticism about educational assumptions. Both external and internal to the educational system, there is growing impatience with traditional value-judgements.

A large educational system was built in this country during the 1960's under forced-draft conditions in response to the needs of a rapidly expanding population, rising incomes, and increasing enrolment ratios. A catching-up element was also involved. The indications are that the system now faces the ringer of budget constraints. How will the system react? How should the "limited" resources allocated to

educational institutions be rationed out by educational planners? By normal attrition? By equal percentage across-the-board cuts, resulting in larger student-teacher ratios? By some breakthrough in the organization of teaching and related resources? (The last breakthrough is said to have been the printed book.) By greasing the squeaking wheels and neglecting the rest? By culling disciplines with trends toward a chronic oversupply of graduates in the job markets? By general or selective enrolment quotas? By constructing more flexible facilities? Etc. In short, will rising costs be combatted by restricting enrolment, by deteriorating the "quality" of the product, by increasing productivity, or by some combination of these actions? Conventional competitive pressures are weak or missing altogether. Can educational planners devise effective incentives ("shadow prices") for encouraging increased productivity? Some of these questions have been touched upon by previous speakers (e.g., "units of professional strength"), but one problem has not - how can part of the savings resulting from increased productivity be retained to help increase the quantity or quality of the product, rather than going to the suppliers? These are essential elements of the performance challenge facing educational planning at the institutional level for the 1970's.

The process is broader than housekeeping, and can be assisted by resource-implication models which indicate the minimum-cost combination - providing that the objective is clearly defined, and providing that productivity is not held constant, because raising productivity is becoming one of the targets for the 1970's. Properly applied, such analytical tools can help to keep the government out of internal decision-making.

If we are to contribute to an acceptable response to the targets and performance challenges, we will need readings of contemporary public attitudes to the role and responsibility of education in its various forms and levels (I hope to raise this point again at the statistical workshop this afternoon). Allowances must be made for the indirect as well as the direct effects on social benefits and costs (e.g. education and health). Furthermore, educational officials and "producers" must keep up to date on shifts in private demand patterns in order to anticipate correctly the future *profile* of enrolment.* In short, social and private patterns of demand are dynamic variables which, if existing institutions are to avert both irrelevance and being by-passed, cannot be taken for granted in educational planning for the 1970's.

The planning process must go beyond preparing a set of action proposals, prepared in isolation from their means of implementation in financial and physical terms. What is at stake are incremental changes in the right directions, as opposed to convulsive upheaval.

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* Assuming a decision-making process to both investment and consumption aspects of private demand.

Let me recapitulate briefly only those points which seem new to the discussions as I have followed them over the past day and a half:

1. In view of the fact that social and private goals for education are elusive, and since they set the standard against which educational performance must ultimately be judged, educational planners need some mechanism for monitoring more closely and more systematically what Canadians individually and collectively expect from their educational systems.

2. The resources committed to education are now roughly $10 billion, counting foregone earnings, and have been growing much faster than incomes.

3. The current crunch in educational finances is due in considerable part to escalating expectations of Canadians for the "good life."

4. Raising educational productivity is becoming one of the targets for the 1970's.

5. Institutions need some means of channelling some productivity gains into increasing the quantity or quality of outputs rather than inputs.

6. What is at stake are incremental changes in Canada's large educational system rather than convulsive upheaval.

7. Economics should be regarded as an ally, not an adversary, in this process of adjustment.

In conclusion, what I have been suggesting is that important educational premises taken for granted during the early and middle 1960's have come unstuck. Educational growth almost for its own sake and at almost any cost has been superseded by social and financial forces for more cautious and certainly more economical expansion, i.e., selective growth plus selective culling. The financial crunch is especially strong now, while the economy is operating at considerable slack. Regardless of what analytical aids* (such as the one discussed by Dr. Alkin) are used in tackling this challenge, and I suggest that no single approach will be adequate, one thing seems assured - there will be plenty to do to keep all educational planners and researchers busy.

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* Enrolment projections, manpower forecasting, rates of return, budget analysis, and resource implication models, etc.

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CONFERENCE PROGRAM AND PARTICIPANTS

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PROGRAM

Sunday, October 18

A. Introduction: Dr. E. Miklos, Human Resources Research Council

Address: *SOCIAL RESEARCH AND PUBLIC POLICY*

Senator Donald Cameron, Vice-Chairman,
Special Committee on Science Policy,
The Senate of Canada

Monday, October 19

A. Chairman: Dr. A. Kratzman, Dean,
Faculty of Education, Regina

Panel: *PERSPECTIVES ON EDUCATION PLANNING*

Dr. A.M. Kristjanson, Alberta Universities Commission

Mr. W.J. McCordic, Director and Secretary-Treasurer, Metropolitan Toronto School Board

M. Arthur Tremblay, Directeur Général,
Office de Planification et de Développement du Québec
(Paper to be read by Dr. J.M. Joly, President, Canadian Council for Research in Education)

Dr. H.D. Hemphill, Director of Research and Planning, Department of Youth and Education, Manitoba

Discussant: Dr. G. Richert, Executive Assistant,
Canadian Teachers' Federation

B. Chairman: Dr. W.D. Neal, Vice-President (Planning and Development), The University of Alberta

Address: *THE THREAT OF INCREASING NUMBERS AND COSTS IN POST-SECONDARY EDUCATION*

Dr. M. Wisenthal, Director, Education Division, Dominion Bureau of Statistics

Monday, October 19 (continued)

C. Chairman: Dr. S.C.T. Clarke, Director of Summer Session, The University of Alberta

Address: *PLANNED CHANGE IN EDUCATION: ELEMENTS, DYNAMICS, AND VALUES*

Dr. F.E. Whitworth, Research Director, Saskatchewan School Trustees' Association

Tuesday, October 20

A. Chairman: Dr. D.A. MacKay, Department of Educational Administration, The University of Alberta

Address: *MEASURING EDUCATIONAL PERFORMANCE: SETTING REAL TARGETS FOR EDUCATIONAL DEVELOPMENT*

Dr. M.C. Alkin, Director, Center for the Study of Evaluation, University of California at Los Angeles

Discussants: Dr. W.E. Haviland, Economic Council of Canada

Professor D.E. Levine, Department of Educational Administration, The Ontario Institute for Studies in Education

B. Chairman: Dr. J.E. Reid, Director of Operational Research, Department of Education, Edmonton

Address: *QUANTITATIVE PLANNING TECHNIQUES IN PERSPECTIVE*

Professor R.W. Judy and Mr. A. Van Wijk, Systems Research Group, Toronto

C. Workshops:

1. PPBS — Dr. W.R. Duke, PPBES, Project Director, Department of Education, Alberta

2. Cost Benefit and Cost Effectiveness Analysis

Dr. P.J. Atherton, Department of Educational Administration, The University of Alberta

3. Simulation Techniques

   Systems Research Group

4. Developing Instruments and Measuring Educational Outcomes

   Dr. T.O. Maguire, Department of Educational Psychology, The University of Alberta

5. Statistical Data and Other Information Needs of Education Planners

   Dr. G.S. Tracz, Department of Educational Planning, The Ontario Institute for Studies in Education

D. Chairman: Dr. L.W. Downey, Director, Human Resources Research Council

Speaker: Dr. W.H. Worth, Commission on Educational Planning, Edmonton

Wednesday, October 21

A. Chairman: Dr. E.J. Monohan, Acting Director, Canadian Council for Research in Education

Plenary Sessions: *ORGANIZING FOR CONTINUED STUDY*

THE ROAD AHEAD

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